

INDIAN NOTES AND MONOGRAPHS

EDITED BY F. W. HODGE

VOL. VII



No. 4

A SERIES OF PUBLICA-
TIONS RELATING TO THE
AMERICAN ABORIGINES

CERTAIN ARTIFACTS FROM SAN MIGUEL ISLAND, CALIFORNIA

BY

GEORGE G. HEYE

NEW YORK

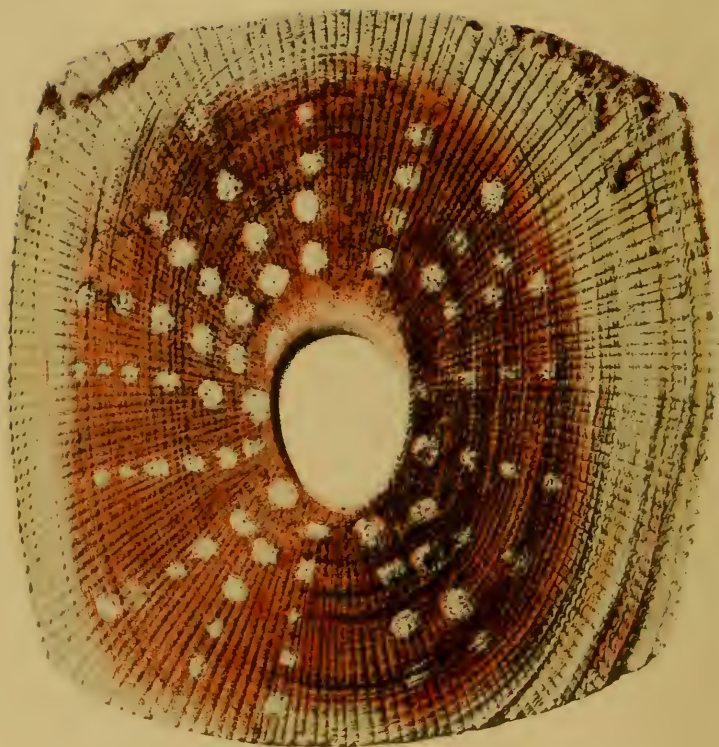
MUSEUM OF THE AMERICAN INDIAN
HEYE FOUNDATION

1921

E
51
.I392
vol.7
no.4
NMAIREF

THIS series of INDIAN NOTES AND MONOGRAPHS is devoted primarily to the publication of the result of studies by members of the staff of the Museum of the American Indian, Heye Foundation, and is uniform with HISPANIC NOTES AND MONOGRAPHS, published by the Hispanic Society of America, with which organization this Museum is in cordial coöperation.

Only the first ten volumes of INDIAN NOTES AND MONOGRAPHS are numbered. The unnumbered parts may readily be determined by consulting the List of Publications issued as one of the series.



PAINTED KEYHOLE LIMPET SHELL
(Height 2 1-4 in.)

INDIAN NOTES AND MONOGRAPHS

EDITED BY F. W. HODGE

VOL. VII



No. 4

A SERIES OF PUBLICA-
TIONS RELATING TO THE
AMERICAN ABORIGINES

CERTAIN ARTIFACTS FROM SAN MIGUEL ISLAND, CALIFORNIA

BY
GEORGE G. HEYE

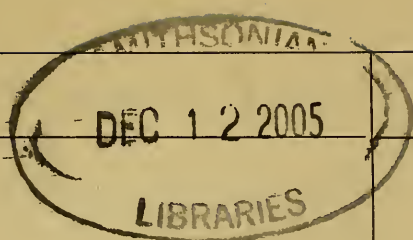
NEW YORK
MUSEUM OF THE AMERICAN INDIAN
HEYE FOUNDATION

1921

CONTENTS

	PAGE
Foreword.....	15
Geography.....	17
History.....	21
Inhabitants.....	27
The Cemeteries.....	34
Stone Objects.....	41
Vessels.....	42
Mortars and pestles.....	45
Pestle-hammers.....	47
Sinkers.....	48
Spearpoints.....	51
Steatite-working tools.....	51
Perforated stones.....	52
Rings.....	54
Ornaments.....	55
Pipes.....	60
Tubes and beads.....	61
Sword or club.....	65
Chipped objects.....	66
Abrading tools.....	73
Bone objects.....	74
Whale-bones as grave markers.....	74
Whale-bone mortar.....	76
Various objects.....	78
Fishhooks.....	83
Bodkins and punches.....	86
Arrowpoints.....	88
Pendants.....	89
Awls and pins.....	91

6	SAN MIGUEL ISLAND
	Needles..... 92 Wand or staff..... 93 Hair-ornaments..... 94 Whistles and flutes 98 Tubes..... 100 Beads..... 106 Pendants..... 108 Objects of fish-bone..... 110 Turtleshell..... 114 Arrow wounds..... 115 Shell objects..... 117 Utilitarian objects of haliotis..... 117 Ornaments of haliotis..... 120 Hooks..... 133 Other shell objects..... 137 Ornaments of keyhole limpet shells..... 155 Inlaid hair-ornament..... 157 Inlaid handles..... 158 Woven materials..... 158 Intrusive objects..... 159 Summary..... 159 Bibliography, prepared by Prof. Frederick J. Teggart, of the University of California 165 Index 185
VII	INDIAN NOTES



ILLUSTRATIONS

PLATES

Painted keyhole limpet shell	<i>Frontispiece</i>
I. Map of the Channel islands and the southern California coast	16
II. Topographic map of San Miguel island	18
III. Globular sandstone vessel . . .	34
IV. Globular sandstone vessel . .	35
IVa. Conical vessel of sandstone . .	36
V. Sandstone vessel	37
VI. Steatite cup	38
VII. Unfinished stone mortar . . .	39
VIII. Paint cups	40
IX. Stone pestles	41
X. Stone pestles	42
XI. Steatite fish-line sinkers	43
XII. Stone fish-line sinkers	44
XIII. Stone fish-line sinkers	45
XIV. Sinkers of stone	46
XV. Stone spearpoints	47
XVI. Implements used in working steatite	48
XVII. "Perforated stones" of sandstone	49
XVIII. "Perforated stones" of sandstone	50

AND MONOGRAPHS

8	SAN MIGUEL ISLAND
	XIX. "Perforated stones" of dark-green steatite. 51 XX. "Perforated stones" of dark-green steatite. 52 XXI. Stone rings inlaid with shell discs. 53 XXII. Pendants of stone. 54 XXIII. Steatite pendants. 55 XXIV. Steatite pendants. 56 XXV. Objects of steatite. 57 XXVI. Natural concretions and crystals. 58 XXVII. Smoking pipes. 59 XXVIII. Steatite tubes. 60 XXIX. Beads of steatite. 61 XXX. Grooved beads of steatite. ... 62 XXXI. Beads of stone. 63 XXXII. Beads of black steatite. 64 XXXIII. Stone beads. 64 XXXIV. Stone sword or club. 64 XXXV. Painted chalcedony knife. ... 66 XXXVI. Knife blades of chalcedony. . 68 XXXVII. Artifacts of chipped chalcedony. 69 XXXVIII. Arrow and spear points. 70 XXXIX. Drills and arrowpoints. 70 XL. Arrowpoints, knives, and drills. 70 XLI. Knife blades with bitumen mounting. 71 XLII. Chalcedony point showing delicate chipping. 72 XLIII. Reamer and perforators of stone. 74 XLIV. Scrapers of stone. 74
VII	INDIAN NOTES

ILLUSTRATIONS	9
XLV. Chipped obsidian implements 74 XLVI. Bone points for arrows or spears..... 75 XLVII. Objects of whale-bone..... 80 XLVIII. Bone chisels and reamer..... 81 XLIX. Curved bone implements.... 82 L. Curved bone implements.... 83 LI. Bone artifacts with asphaltum mountings..... 84 LII. Bi-pointed bone implements. 85 LIII. Barbs of bone..... 86 LIV. Bone awls..... 87 LV. Bone awls and hairpins..... 90 LVI. Bone pins and needles..... 91 LVII. Pointed horn and curved bone hairpin..... 92 LVIII. Decorated hair-ornaments of bone..... 93 LIX. Bone hair-ornaments and in-laid wand..... 94 LX. Bone objects, probably hair-ornaments..... 95 LXI. Bone hair-ornaments..... 96 LXII. Hairpins of human and deer bone..... 97 LXIII. Whistles of bone..... 98 LXIV. Whistles of bone..... 99 LXV. Musical instruments of bone. 100 LXVI. Bone tubes..... 101 LXVII. Decorated bone tubes..... 102 LXVIII. Bone tubes or beads..... 103 LXIX. Beads of bird-bone..... 106 LXX. Ornamented bone pendants. . 107 LXXI. Sides of a turtleshell rattle.. 114	
AND MONOGRAPHS	4

10	SAN MIGUEL ISLAND
	LXXII. Human bones penetrated by arrowpoints..... 115 LXXIII. Haliotis shell used as an asphaltum container..... 116 LXXIV. Paint receptacle of haliotis shell..... 116 LXXV. Haliotis shell pendant with inlaid decoration..... 116 LXXVI. Ornaments made from haliotis pearls..... 117 LXXVII. Beads made from haliotis-shell rims..... 118 LXXVIII. Pendants made from haliotis-shell rims..... 119 LXXIX. Unfinished ornaments of haliotis shell..... 120 LXXX. Inlays of haliotis shell..... 121 LXXXI. Circular ornaments of haliotis shell..... 122 LXXXII. Ornaments of haliotis shell with two perforations..... 123 LXXXIII. Annular type of haliotis-shell ornaments..... 124 LXXXIV. Ornaments of haliotis shell with two perforations..... 125 LXXXV. Ornaments of haliotis shell with two perforations..... 126 LXXXVI. Ornaments of haliotis shell with two perforations..... 126 LXXXVII. Ornaments of haliotis shell... 126 LXXXVIII. Ornaments of haliotis shell with three perforations... 127 LXXXIX. Ornaments of haliotis shell with three perforations... 128
VII	INDIAN NOTES

ILLUSTRATIONS	11
XC. Ornaments of haliotis shell with four perforations..... 129 XCI. Ornaments of haliotis shell with four perforations..... 130 XCII. Ornaments of haliotis shell with four perforations..... 130 XCIII. Ornaments of haliotis shell with sundry perforations... 130 XCIV. Ornaments of haliotis shell with sundry perforations... 131 XCV. Ornaments of haliotis shell... 132 XCVI. Ornaments of haliotis shell... 133 XCVII. Ornaments of haliotis shell... 134 XCVIII. Shell hooks..... 135 XCIX. Various stages in the manu- facture of shell hooks..... 136 C. Unfinished pendants of clam- shell..... 137 CI. Pendants of clam-shell..... 138 CII. Circular pendants of clam- shell..... 139 CIII. Pendants of clam-shell..... 140 CIV. Pendants of clam-shell..... 140 CV. Pendants of clam-shell..... 140 CVI. Clam-shell pendants, broken and redrilled. 141 CVII. Shell pendants with pitted ornamentation..... 142 CVIII. Clam-shell pendants with pitted ornamentation..... 143 CIX. Clam-shell pendants with pitted decoration..... 144 CX. Annular ornaments of clam- shell with pitted decoration. 145 CXI. Shell ornaments..... 146	
AND MONOGRAPHS	4

12	SAN MIGUEL ISLAND
	CXII. Shell ornaments decorated with inlay..... 147 CXIII. Shell pendants and beads.... 148 CXIV. Beads made of clam-shell.... 148 CXV. Discs of clam-shell..... 148 CXVI. Shell beads with incised dec- oration..... 149 CXVII. Beads made from shells of the rock-oyster..... 152 CXVIII. Ornaments made from key- hole limpet shells..... 153 CXIX. Perforated keyhole limpet shells..... 154 CXX. Perforated keyhole limpet shells..... 155 CXXI. Inlays made from keyhole limpet shells..... 156 CXXII. Shell inlays on asphaltum... 157 CXXIII. Fragment of sea-grass apron. 158 CXXIV. Fragment of grass apron and of a braided tie-string..... 159 FIGURES 1. Obsidian knife..... 70 2. Obsidian hook..... 71 3. "Scarifier" of flint..... 72 4. Grinder of sandstone..... 73 5. Whale vertebra used for lining graves.. 75 6. Whale vertebra used as a grave marker. 76 7. Mortar of a whale vertebra..... 77 8. Knife made of whale-bone..... 79 9. Tool-handle made from the radius of the elephant seal..... 80 10. Bone fishhooks. (After Bowers.)..... 84 11. Bone fishhook barbs..... 85
VII	INDIAN NOTES

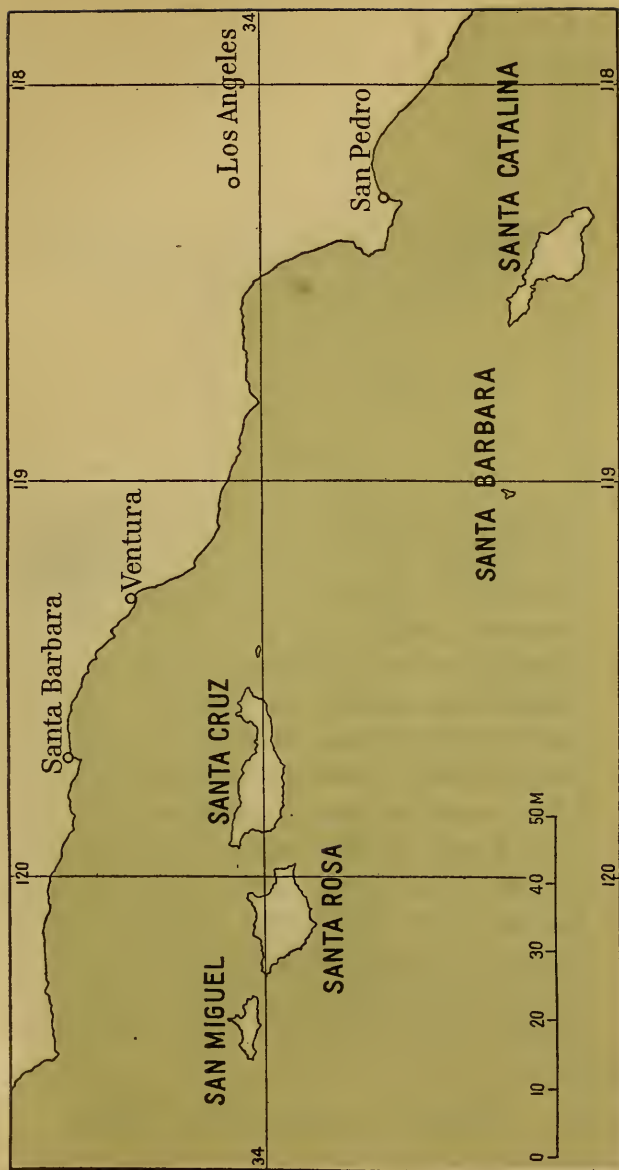
ILLUSTRATIONS	13
12. Bodkins or punches made from ulnæ of deer.....	87
13. Bone arrowpoints (<i>a</i> , <i>b</i>) and worked teeth (<i>c</i> , <i>d</i>).....	88
14. Sea-lion tooth (<i>a</i>) and eagle-claw (<i>b</i>) used as pendants.....	90
15. Box made from the humerus of a deer.	101
16. Dotted decoration on a bone tube.....	104
17. Section of bone tube.....	105
18. Bone pendants and beads.....	107
19. Dental plates of the eagle-ray, used as implements.....	111
20. Beads made from vertebræ of small fish.....	112
21. Beads made from vertebræ of mackerel.	113
22. Haliotis-shell scoop.....	118
23. Haliotis shell used for containing asphaltum.....	119
24. Pendants of haliotis shell.....	126
25. Triangular ornaments of haliotis shell with incised or notched edges.....	127
26. Ornaments of haliotis shell.....	130
27. Pendant of clam-shell.....	139
28. Pendant of clam-shell.....	140
29. Cylindrical beads made from columellæ of various shells.....	147
30. Perforated musselshell blanks (<i>a</i>) and finished beads (<i>b</i>), and beads made of shell of the spiny oyster.....	150
31. Beads made of <i>Oliva</i> and <i>Olivella</i> shells.....	151
32. Beads and pendants made from entire shells.....	153
33. Beads made by grinding off the points on both ends of univalves.....	155
AND MONOGRAPHS	4

- FOREWORD



IN 1919 an archeological expedition to San Miguel island, California, was made possible for the Museum of the American Indian, Heye Foundation, through the generosity of Mrs Thea Heye of New York City, to whom the Museum expresses its grateful appreciation for this continued manifestation of her interest in its endeavors. The expedition was in charge of Mr Ralph Glidden, of Avalon, California, who had already conducted excavations on other islands off the California coast, and who in this later research was assisted by Arthur Taschenberger and Frederick Johnson. The work of the expedition on the island extended from March 16 until October 2, during which period 343 skeletons were exhumed. Unfortunately, the photographs showing many of these in situ were lost by the capsizing of the boat on the return trip.

16	SAN MIGUEL ISLAND
	The following paper does not attempt to describe all known forms of artifacts from San Miguel island; it aims only to present the results of the excavations referred to, and to describe a few additional specimens in the Museum's collections. The extended and useful terminal bibliography was prepared by Prof. Frederick J. Teggart of the University of California, through the courtesy of the American Geographical Society of New York. The Museum expresses its gratitude both to Professor Teggart and to the Society for this valued contribution, by means of which such usefulness as the article may be found to possess will be greatly enhanced. The Museum wishes to acknowledge its appreciation of the assistance rendered by the following members of the staff of the American Museum of Natural History in the identification of various objects: H. E. Anthony, as to animal bones; John T. Nichols, as to those of fish; and Arthur P. Jacot, as to specimens of shell. GEORGE G. HEYE, <i>Director.</i>
VII	INDIAN NOTES



MAP OF THE CHANNEL ISLANDS AND THE SOUTHERN CALIFORNIA COAST

CERTAIN ARTIFACTS FROM SAN MIGUEL ISLAND, CALIFORNIA

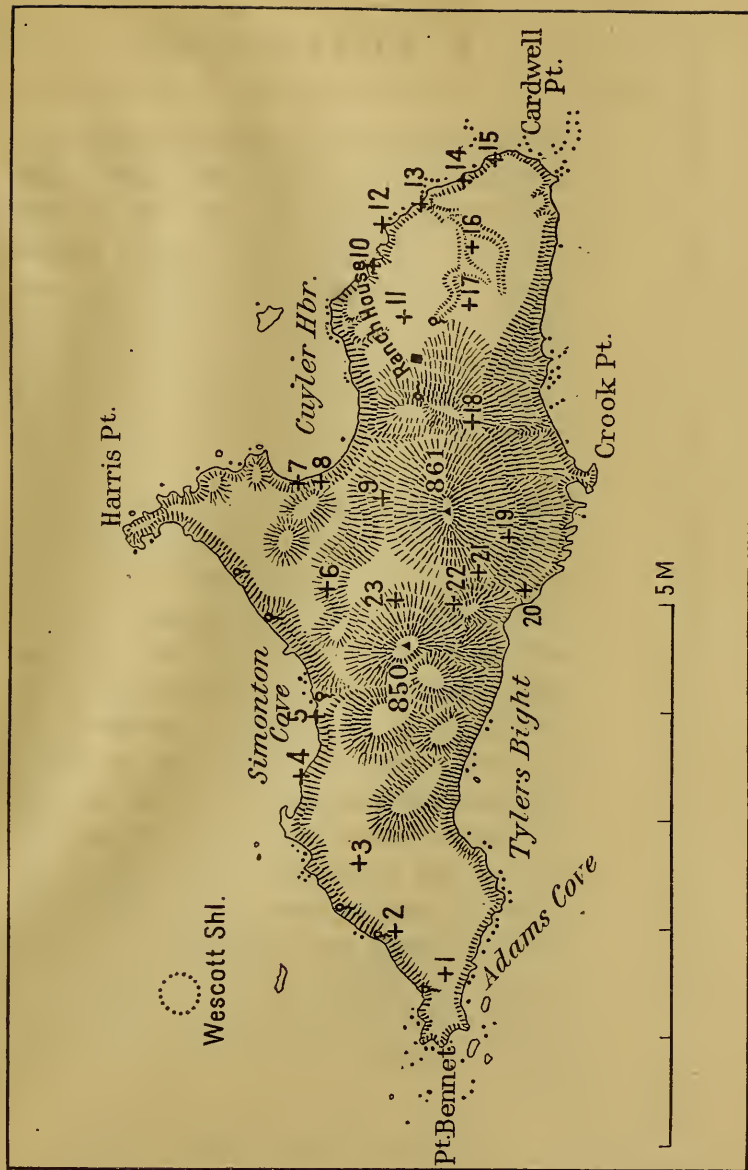
By GEORGE G. HEYE

GEOGRAPHY



AN MIGUEL island is the most northwesterly of the group, off the coast of southern California, known as the Santa Barbara islands, and more popularly as the Channel islands. The map (pl. 1) shows San Miguel to lie 26 miles from the nearest point on the coast of Santa Barbara county, and 43 miles from the well-known town of Santa Barbara. For the greater part the island consists of a sandy waste, with only a sparse growth of grass, cactus, and small bushes, owing to the constant shifting of the sands by reason of the high winds that almost continuously prevail. An idea of the sudden

18	SAN MIGUEL ISLAND
	changes in the surface levels may be had by the knowledge that on several occasions during the excavations a skeleton found less than a foot beneath the surface at nightfall, had been buried by four feet of drift-sand before the following morning. A ridge averaging 500 feet in height and occupying the larger part of the island culminates in two hills, 850 and 861 feet high respectively (pl. II). Schumacher (1877) gives the following excellent description of the topographic features of San Miguel: “From the northern bold point to the eastern end, with the exception of a break formed by Cuyler Harbor, the shores are rocky and high; and from here along the southern side, toward the low, sandy west end, a smooth ridge, about 500 feet high, abruptly ends in a bold shore-line. On the north side this brown, dry, and dusty-appearing elevation slopes steeply, and is arrested by immense dunes of drifting sand, which extend from the west and in innumerable ridges of most varied formation, and nearly half the width of the island, to the north point. Sand driven by northwest winds is drifting into the bay, which is being gradually filled in at its northwest side, where the dunes descend in a steep decline to the water's edge, and their base is washed by the ocean.”
VII	INDIAN NOTES



TOPOGRAPHIC MAP OF SAN MIGUEL ISLAND

G E O G R A P H Y	19
The exact latitude and longitude of the loftier height referred to is $34^{\circ} 02' N.$ and $120^{\circ} 21' 50'' W.$ The longer axis of San Miguel extends almost exactly east and west, and measures 8.35 statute miles from Cardwell point to Point Bennet. From Harris point in the north to Crook point on the southern shore is 4.345 statute miles. The entire area of the island is 14.62 square miles. The only practicable landing place on San Miguel—and that only by means of a row-boat—is at Cuyler harbor; and for days at a time a landing even here is impossible, owing to the heavy swell caused by the winds that blow almost unvaryingly from the northwest. Nine springs on the island furnish an abundance of fresh water; of these, six are on the northwestern coastline and three in the eastern interior, two of the latter being in the vicinity of and one at the ranch house, as indicated on the map. When the exploration was undertaken by the Museum the only inhabitants of the island were a man and his wife who occupied the ranch house and served as care-	
A N D M O N O G R A P H S	4

20	SAN MIGUEL ISLAND
	takers for about two thousand sheep which gained their subsistence from the patches of grass on the summit of the ridge that occupies most of the island area. A little to the east of north from Point Bennet, and two miles away, is Wescott shoal, in which is found an oil well that discharges quantities of asphaltum, formed by the action of water and waves into roughly globular masses from the size of a pea to some weighing several pounds. Great numbers of these, cast upon the beach, afforded the ancient inhabitants of San Miguel ready access to a material used by them largely for manufacturing and ornamenting various objects. Many of the early voyagers give interesting accounts of the Santa Barbara channel and its neighboring islands, but none of them presents any details of importance in regard to San Miguel. For the source material respecting these early visits, the reader is referred to the bibliography, at the close of this paper, under the following: Cabrillo (1542), Relacion breve (1602), Carrasco y Guisasola (1602), Vizcaino (1602),
VII	INDIAN NOTES

HISTORY	21
Palacios (1603), Herrera (1615), Torquemada (1723), Gonzalez Cabrera Bueno (1734), Costansó (1769), Crespi (1769), Vancouver (1798), Duflot de Mofras (1844), Findlay (1851), Davidson (1869), Kohl (1884), Davidson (1886). HISTORY It is not the intention to present a detailed account of the history of San Miguel island, but rather to give a few extracts from early authorities, referring the reader to the bibliography for further information. San Miguel island was discovered on October 18, 1542, by Juan Rodriguez Cabrillo, a translation of the narrative of whose voyage (Relation (4), 1542) was published by Bolton in 1916, from whose work the following extracts are made: “On Wednesday, the 18th of the said month [October, 1542], they proceeded along the coast until ten o'clock, seeing that all the coast was populated; and because there was a fresh wind and canoes did not come to them, they drew near to a headland which forms a cape like a galley, and named it Cape Galera [Point Conception]. It is in thirty-six degrees, full. And	
AND MONOGRAPHS	4

22	SAN MIGUEL ISLAND
	because a strong northwest wind struck them they stood off shore and discovered two islands, one large [Santa Rosa], probably about eight leagues long from east to west, the other [San Miguel] about four leagues. They are inhabited, and in this small one there is a good port [Cuyler harbor]. They are ten leagues from the mainland. They are called the Islands of San Lucas. . . . They remained in these islands until the following Wednesday because it was very stormy. “On Wednesday, the 25th of the said month, they left these islands, setting out from the one which was most to windward. It has a very good port, which within gives shelter from all storms of the sea. They called it La Posesion. “On Thursday, the 23d of the month [November], they arrived, on the return, in the islands of San Lucas, at one of them called La Posesion. . . . “Passing the winter on the island of La Posesion, on the 3d of the month of January, 1543, Juan Rodriguez Cabrillo, captain of the said ships, departed from this life, as the result of a fall which he suffered on said island when they were there before, from which he broke an arm near the shoulder. He left as captain the chief pilot, who was one Bartolome Ferrelo, a native of the Levant. At the time of his death he emphatically charged them not to leave off exploring as much as possible of all that coast. They named the island the Island of Juan Rodriguez. The Indians call it Ciquimuymu; the next they call Nicalque, and the next, Limu.
VII	INDIAN NOTES

On this island of La Posesion there are two pueblos, one called Zaco and the other Nimollollo. On the next island there are three pueblos, one called Nichochi, another Coycoy, and another Estocoloco. On the third island there are eight pueblos, namely, Niquesesquelua, Poele, Pisqueno, Pualnacatup, Patiquiu, Patiquilid, Nimumu, Muoc, Pilidquay, and Lilibegue.

"The Indians of these islands are very poor. They are fishermen, and they eat nothing except fish. They sleep on the ground. Their sole business and employment is fishing. They say that in each house there are fifty persons. They live very swinishly, and go about naked.

"They remained on these islands from the 23d of November till the 19th of January. During all this time, which was nearly two months, there were very heavy winter winds and rains. The prevailing winds were west-southwest, south-southwest, and west-northwest. There were very violent winds.

"On Friday, the 19th of the said month of January, 1543, they set sail from the island of Juan Rodriguez, which is called Ciquimuymu, to go to the mainland in search of some provisions for their voyage . . . [the narration continues with an account of their difficulties in getting away from the islands].

"On Monday, the 5th of the month of March, 1543, in the morning, they found themselves at the island of Juan Rodriguez, but they did not dare enter the port because of the high tempest which caused breakers at its entrance in fifteen fathoms. The wind was from the north-northwest. The entrance is narrow. They ran to

24	SAN MIGUEL ISLAND
	shelter under the island of San Salvador [Santa Cruz] on the southeast side. . . .” According to the Diary of Sebastian Vizcaino (1602), translated by Bolton, San Miguel island is not mentioned by that explorer; indeed, the next reference to it, under the name San Bernardo, is by Costansó, in 1769. Finally, in 1793, Vancouver adopted for the island the name San Miguel (Vancouver, 1798), found on an old Spanish chart, a name that has persisted to the present time. The island has been known by numerous names, which have been recorded by Davidson (1886), as follows: “La Isla de la Posesion, Cabrillo. La Isla de Posesion, Ferrelo. Una de las Islas de San Lucas, Ferrelo. . . . La Isla de Baxos, Vizcaino’s chart. Ciquimuymu, Indian, Ferrelo. San Miguel Island; . . . Ferrelo named the island La Isla de Juan Rodriguez after Cabrillo’s death. El Puerto de la Posesion, Cabrillo, Ferrelo. Cuyler’s Harbor.” Davidson (1889, p. 98) says further: “The island of San Miguel was discovered by Cabrillo in 1542, and Cuylers Harbor is the bay
VII	INDIAN NOTES

in which he wintered. He named the island La Isla de la Posesion and the harbor La Puerto de la Posesion because he went through the ceremony of taking possession of the country. He died here January 5, 1543, having directed Bartolomè Ferrelo, his pilot, to assume the command of the expedition and continue the exploration as far north as possible. Ferrelo afterwards named the island in whose harbor his commander had wintered, Juan Rodriguez. The Indian name was Liquimuymu, and there were three villages upon it.

"In 1602 Vizcaino named it San Bernardo, and this designation is retained in the Carta General of 1791 preserved in the archives at Madrid, of which we have the tracing of a copy certified by Navarrete. On his chart it is called Isla de baxos.

"In 1774 Don Juan Perez, commanding the frigate *Santiago*, named it Santa Rosa. On later Spanish charts it was sometimes called San Miguel and Santa Barbara. The present name is that adopted by Vancouver in 1793."

In 1769 Costansó (pp. 207, 309) wrote:

Thursday, August 24, 1769. ". . . From this place, which we named San Luis Rey, we discovered, in the afternoon, the three last islands of the Canal de Santa Bárbara. These are San Bernardo, the most westerly; then Santa Cruz, to the east; and Santa Bárbara, the most easterly of the three, which gave its name to the stretch of sea and coast about which we are speaking. . . ."

26	SAN MIGUEL ISLAND
	Thursday, January 4, 1770. ". . . The island of San Bernardo in the language of the natives, is called <i>Thoa</i>; that of Santa Cruz is called <i>Lotolic</i>; that of Santa Bárbara, <i>Anajup</i>." Regarding the name, Vancouver (1798, p. 448) recorded the following in 1793: "1793 November [9] ". . . the westernmost, or first island, forming the canal of Santa Barbara, called in one of the Spanish charts St. Miguel, in the other St. Bernardo, (the former of which I have adopted) bore S. 25 E., to S. 32 E.; the next called in one of those charts Santa Rosa, in the other St. Miguel (the former of which I have continued) bore S. 42 E., to S. 54 E.; and a high hill on the third island, called in the Spanish charts Santa Cruz, bore S. 70 E." Bancroft (1874, p. 402), says: "The natives call the island of Santa Cruz <i>Liniooh</i>, Santa Rosa <i>Hurmal</i>, San Miguel <i>Twocan</i>, and San Nicolas <i>Ghalashat</i>." It is thus seen that the early history of San Miguel is meager as to details. Curiously enough, the most important historical event took place shortly after its discovery—the death of Cabrillo in what is now Cuyler harbor, and his probable burial there.
VII	INDIAN NOTES

INHABITANTS	27
INHABITANTS The aboriginal inhabitants of San Miguel island were of the Chumashan family. Seven dialects of the language of this family are known, one of which was spoken by the islanders of Santa Rosa and Santa Cruz. These two islands, with San Miguel, were the only ones of the Santa Barbara group inhabited by Chumash, the southern islands of the group belonging to Shoshonean people. On the Chumashan Family the Handbook of American Indians (1907, I, 296) says: “The northern of the Santa Barbara ids. (Santa Cruz, Santa Rosa, and San Miguel) were inhabited by the Chumash, but the 3 southern islands of the group belonged to Shoshonean people. . . . In character and habits the Chumash differed considerably from the other Indians of California. All of the early voyagers note their friendliness and hospitality, and their greater affluence and abundance of food as compared with their neighbors. They appear to have had a plentiful supply of sea food and to have depended on it rather than on the vegetal products which usually formed the subsistence of California Indians. With the islanders this was no doubt a necessity.	
AND MONOGRAPHS	4

28	SAN MIGUEL ISLAND
	Their houses were of grass or tule, dome-shaped, and often 50 ft. or more in diameter, accommodating as many as 50 people. Each was inhabited by several families, and they were grouped in villages. The Chumash were noted for their canoes, which were not dug out of a single log, but made of planks, lashed together and calked. Most were built for only 2 or 3 men, but some carried 10 and even 13 persons. An unusual variety of shell ornaments and of work in shell inlaid by means of asphaltum also characterize the archeologic discoveries made in Chumashan territory. . . . The dead among the Chumash were buried, not burned as in many other parts of California; property was hung on poles over their graves, and for chiefs painted planks were erected." We have already learned from the account of Cabrillo's voyage of 1542 that the names of two native villages on San Miguel were Nimollollo [Nimoyoyo] and Zaco. Davidson (1889) says that the Indian name of the island was Liquimuymu (Ciquimuymu), and that three villages were upon it, hence it would seem that the name of the third village has not been recorded. Davidson's statement agrees with the observations made by the Museum's expedition, as three large village-sites were discovered—one at Point Bennet (pl. II), another on the penin-
VII	INDIAN NOTES

INHABITANTS	29
sula on the west side of Cuyler harbor, and the third on the eastern end of the island, near Cardwell point. According to Mr John P. Harrington, of the Bureau of American Ethnology, who has devoted special study to the Chumashan stock and who communicates the present information from his unpublished data,— “The Indian name of San Miguel island was <i>Tukan</i> [cf. <i>Twocan</i> above noted] (<i>k</i> pronounced like Arabic <i>q</i>). The natives of this and the other Chumashan speaking islands were called Chumash (phonetically Tchumac, of unknown etymology). The Spanish corruption of this word is <i>Chuma</i>, pl. <i>Chumas</i>. It is improper to apply the name Chumash to the mainland Indians or to the whole linguistic stock, for which Powell’s term Chumashan should be retained. The natives of Tukan were settled by the Padres chiefly at La Purísima mission.” An interesting account of the inhabitants of the islands and of the coast of Santa Barbara channel is given by Costansó (1769 (4), pp. 133–139), as follows: “The Indians observed to have the greatest energy and industry are those who inhabit the islands and the coast of the channel of Santa Barbara. They live in towns, the houses of	
AND MONOGRAPHS	4

30	SAN MIGUEL ISLAND
	which are spherical in form, like the half of an orange, are covered with reeds, and are as much as twenty yards in diameter. “Each house contains three or four families. The fireplace is in the middle, and in the upper part of the house they leave an air passage or chimney for the escape of the smoke. These Indians confirmed in every respect the affability and friendly treatment experienced in former times by the Spaniards who landed on this coast with General Sebastian Vizcayno. Both the men and the women are of good figure and appearance, and are fond of painting and staining their faces and bodies. They use large tufts of feathers, and hairpins which they put through their hair with various ornaments and coral beads of different colors. The men go entirely naked, but when it is cold they wear long capes of tanned otter-skins, and cloaks made of the same skins cut in long strips, and turned in such a manner that all of the fur is on the outside. They then weave these strips together, making a fabric, and give it the form mentioned above. “The women are dressed with more modesty, wearing around the waist tanned deerskins, which cover them in front and back more than half way down the leg, and a little cape of otter-skin over the body. Some of them have attractive features. It is they who weave the baskets and vessels of reeds, to which they give a thousand different forms and graceful patterns, according to the use for which they intend them—for eating, drinking, holding seeds, or other purposes, as these people do not understand the
VII	INDIAN NOTES

CULTURE	31
use of clay as it is used by the Indians of San Diego. “The men make beautiful bowls of wood with strong inlays of coral or bone, and some vessels of great capacity, contracted at the mouth, which appear as if turned in a lathe; in fact with this machine they could not be turned out better hollowed or more perfectly formed. To the whole they give a polish which seems the finished handiwork of a skilled artisan. The large vessels which contain water are made of a very strong texture of rushes, coated inside with pitch, and they give them the same shape as our jars. “In order to eat the seeds which they use instead of bread, they first of all roast them in large bowls, putting among the seeds red-hot pebbles or small stones; then they stir and shake the bowl so as not to burn it, and after the seeds are sufficiently roasted, they grind them in mills or stone mortars. Some of these mortars are of extraordinary size, and as well formed as if the best tools had been used in making them. The patience, exactness and energy which they exercise in making these articles are well worthy of admiration. They are so highly valued among the Indians themselves that they have a custom to place them over the grave of those who did that kind of work, in order to preserve the memory of their skill and diligence. “They bury the dead, and their burying grounds are within the town itself. The funerals of their chiefs are conducted with much pomp, and they erect over their bodies some very high rods or poles, on which they hang a	
AND MONOGRAPHS	4

32	SAN MIGUEL ISLAND
	variety of articles and utensils which they used. They also place on the same spot some large pine boards with various pictures and figures, representing, no doubt, the achievements and the valor of the individual. . . . “The expertness and skill of these Indians is unsurpassed in the construction of their canoes of pine boards. They are from eight to ten yards in length from stem to stern-post, and one yard and a half in breadth. No iron whatever enters into their construction, and they know little of its use. But they fasten the boards firmly together, making holes at equal distances apart, one inch from the edge, matching each other in the upper and lower boards, and through these holes they pass stout thongs of deer sinews. They pitch and calk the seams, and paint the whole with bright colors. They handle them with equal skill, and three or four men go out to sea to fish in them, as they will hold eight or ten (men).” Another reference to their canoes is made by Vizcaino (1602, pp. 87-88), as translated by Bolton. Vizcaino does not mention San Miguel island, but of the Indians of the Santa Barbara channel he says: “So we went on skirting the coast, and on Monday, the 2d of the said month (December) we sighted two other large islands. Passing between the first and the mainland, a canoe came out to us with two Indian fishermen, who had a great quantity of fish, rowing so swiftly
VII	INDIAN NOTES

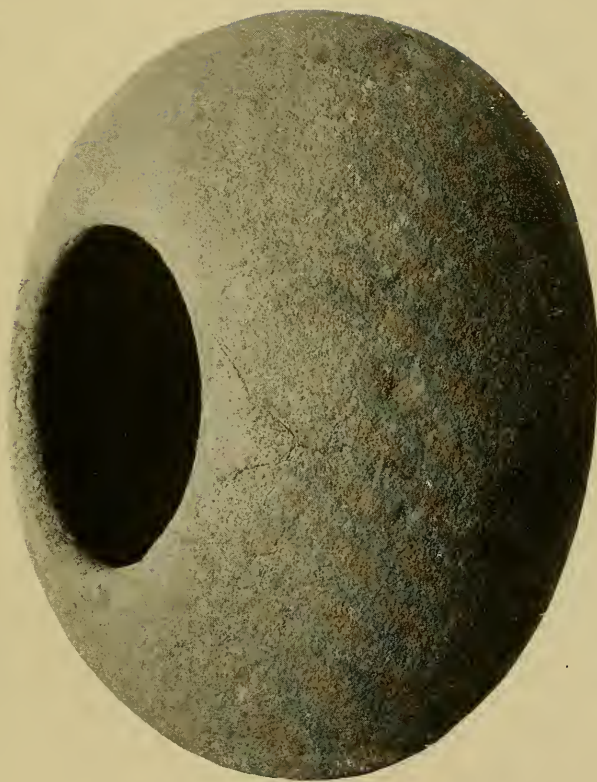
that they seemed to fly. . . . After they had gone five Indians came in another canoe, so well constructed and built that since Noah's Ark a finer and lighter vessel with timbers better made has not been seen. Four men rowed, with an old man in the center, singing as in a *mitote* of the Indians of New Spain, and the others responding to him. . . . Only the old man spoke. . . . This Indian was so intelligent that he appeared to be not a barbarian but a person of great understanding. . . .'

Burney (1803, p. 222), referring to the voyage of Cabrillo, says:

"In the latter [island] they found a small but good port, which was named *De la Possession*. They are 10 leagues distant from *C. de la Galera*. . . . There were on this island many people who lived by fishing. They made beads of the bones of fish, which served them as articles of exchange with the people of the continent. They went naked, and painted their faces in squares 'in the manner of a chess board.' The Spaniards remained eight days at *Puerto de la Possession*, and during that time were upon terms of great good will with the inhabitants. . . ."

Indians inhabited the islands until the early part of the nineteenth century, and then were taken off and distributed by the Fathers among the missions on the mainland. San Nicolas island had some Indian

34	SAN MIGUEL ISLAND
	inhabitants as late as 1830; and one woman, who had been left behind in the general removal, was found there and brought to the mainland in 1851. THE CEMETERIES The excavations on San Miguel island conducted by the Museum expedition yielded in all 343 skeletons, nine of which were obtained from isolated burials, the remaining 334 from the twenty-three sites shown on the map (pl. II). From the largest cemetery, noted as No. 11, situated in a depressed area, 160 burials were obtained, the graves being at an average depth of one foot. The next largest cemetery was No. 1; from it 65 burials were uncovered. All the cemeteries excavated were littered with broken human bones, and most of them showed evidence of having been previously dug. This is not surprising when it is remembered that from the time of the first known archeological collection gathered on San Miguel by Mr W. G. W. Harford of the U. S. Coast Survey in 1872 and 1873, its limited area has been searched by many
VII	INDIAN NOTES



GLOBULAR SANDSTONE VESSEL
(Diameter, $12\frac{1}{4}$ in.)



GLOBULAR SANDSTONE VESSEL
(Height, $9\frac{3}{4}$ in.)

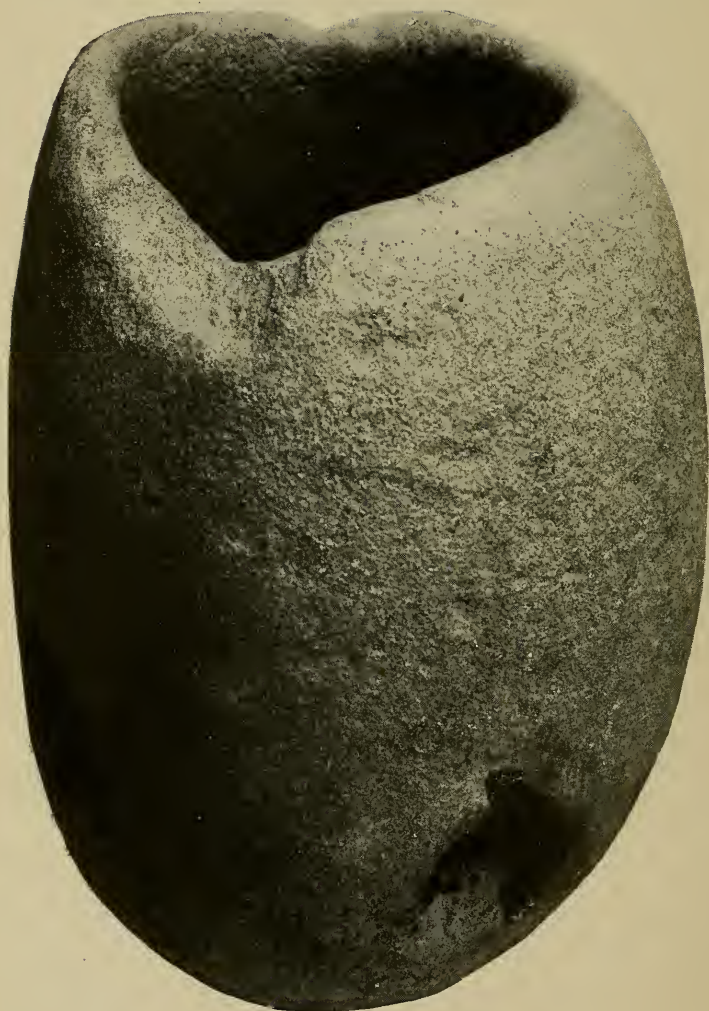
C E M E T E R I E S	35
others, including Dr William H. Dall, Paul Schumacher, Stephen Bowers, Louis G. Dreyfus, and E. L. Doran, besides many so-called "pot-hunters" eager to obtain archeological objects to sell. Even as early as 1875 Schumacher (1877, p. 38) complained that the island had been overrun by curiosity-hunters, as shown by the following remarks, which with one exception were substantiated by the Museum expedition: "The kitchen-middings, or kjökkenmöddings, of a former people are found all over the island where sandy ground is met with. This singular mixture of all kinds of shells, bones, rocks, and flint-chips, spread usually over a space of about a hundred yards square, and to a depth of five feet, although the extent and depth of such shell deposits vary greatly, is found on both sides of the harbor, especially over its northern point, also along the northwest side to the west end, and covers in great masses the low, sandy, western extremity of the island. The deposits of the kjökkenmöddings are much exposed to the strong northwest wind, and, as they are located on loose sand, are laid bare by its action, offering therefore good facilities for surface collections. But of these the casual visitors to the island, mostly persons interested in stock-raising, excursionists, and amateur curiosity-hunters, have picked up or destroyed the best, and much of what was left had been collected	
A N D M O N O G R A P H S	4

several months previously to our visit by Mr. Dall, of the United States Coast Survey, during a short visit to this island. Of the small surface collection made here, I consider an unfinished mortar the most interesting article, showing in its partially rough and incomplete state the mode of manufacturing such a utensil by the aborigines. But my attention was especially given to the finding and exhuming of the old cemeteries, which, as my experience taught me, promises the richest reward. About half-way, and almost in a line between the two springs, near Cuyler Harbor, I found a grave-yard, and soon another close by, which yielded about 250 skeletons, and many utensils, implements, and ornaments of stone, bone, and shell. Not far from the upper spring, another burial place was discovered, which hardly returned any results.

"The mode of burying was similar to that previously observed on the mainland, on the coast of California, which I described in the Smithsonian Report of 1874. The bodies were buried in the kjökkenmöddings, because the kitchen-refuse offered here the only ground which is firm enough to resist caving, and also to prevent the winds from uncovering the dead, as would occur with loose sand. The skeletons were found from three to six feet under ground, and often from three to four resting one above the other, separated, if at all, by the bones of the whale. The bodies were deposited without any order as to position and direction of the face, being sometimes found face downward, lying on one side, or on the back, or face to face, or crosswise, and the bones in nine cases out of



CONICAL VESSEL OF SANDSTONE
(Diameter of rim, 10 in.)



SANDSTONE VESSEL
(Height, $7\frac{5}{8}$ in.)

C E M E T E R I E S	37
ten disturbed and displaced This confirms my former opinion that the graves had been re-opened, and the bones disarranged while fresh bodies were being added. The bodies lay so closely together that at first, they seemed to have been the victims of a fierce battle, buried promiscuously in a pit. Close observation, however, indicates that the interments were made at different times, as implements of shell and bone, skeletons, and remains of perishable partitions, often plainly show by their more or less advanced decay, and by the position in which they are found. It is likewise evident that the burial took place before the decay of the body, although such was not the custom of some interior tribes, because we found the bones of some skeletons buried the deepest, and especially such as were interred separately from the others in perfect order. Some were even still enwrapped in matting. To find a skeleton at the bottom of a pit, at the depth of about five or six feet, especially if there be none above it, is considered by the practical digger a lucky hit, and causes him to work carefully in the removal of the slabs and whale-bones, and to look for stone-knives, spear-points, or strange stone implements, as it is supposed to be either the grave of a warrior, a chief, or a 'medicine-man.' " The difference above noted refers to the character of the surface finds, for with the exception of the human bones, nothing was found on the surface save a comparatively	
A N D M O N O G R A P H S	4

38	SAN MIGUEL ISLAND
	few arrowpoints, and some of the whale-bone slabs such as are referred to by Schumacher. Nothing of Caucasian origin was recovered, with the exception of a few glass beads found on camp-sites, and in one case in a grave. Of the undisturbed skeletons practically all were found lying on their backs, with arms and legs flexed and the skull directed toward the west. More than 12,000 beads and ornaments of shell were found, and of these about ninety-six per cent accompanied the skeletons of children. In Cemetery 8 nineteen skeletons were exhumed, all of them the remains of children from about six to twelve years of age. Most of the shell ornaments alluded to were with these burials; they had been neatly placed in small piles surrounding the skeletons. A burial found in Cemetery 11 was accompanied with more than 5000 small steatite beads, evidently thrown in at random. The only human remains with traces of clothing were found in Cemetery 3; this clothing consisted of sea-grass kilts which extended from the waist to the knees
VII	INDIAN NOTES



STEATITE CUP
(Height, $2\frac{1}{4}$ in.)

HEYE—SAN MIGUEL ISLAND

PL. VII



UNFINISHED STONE MORTAR
(Maximum diameter, $6\frac{3}{8}$ in.)

CEMETERIES

39

(pl. CXXIII, CXXIV), and of traces of hats that had probably been of woven basketry similar to those used by the tribes of the mainland. Unfortunately the remnants of these head-coverings disintegrated on exposure to the air.

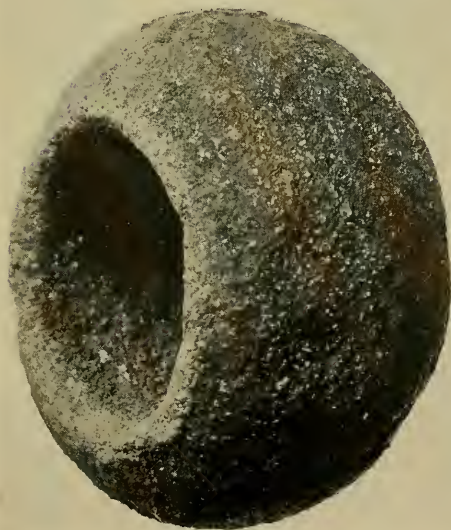
An interesting burial was encountered in Cemetery 14, the skeleton of a male lying on its left side with arms and legs flexed. The bed of the grave was lined with asphaltum about three-eighths of an inch thick, in which were impressed, in no regular order, thousands of disc beads of olivella shell. Over the head and shoulders were other thousands of similar beads, sufficient to fill a two-quart measure. In the left hand was a bone wand inlaid with the same kind of beads (pl. LIX, c). Directly on the chest of the skeleton were the remains of a small child, upon which were three bone tubes similarly inlaid (LXVII, a). This double burial was at the center of a circle of six other burials, the skull of each of which was directed toward the central skeleton. Their only accompaniment consisted of some rude stone tools. The skulls of four

AND MONOGRAPHS

4

40	SAN MIGUEL ISLAND
	of the skeletons referred to were completely covered with asphaltum, but there was no trace of this material on the rest of the skeletons. Regarding the mortuary customs of the Chumash, Costansó (1769, 4) says, "The funerals of their chiefs are conducted with much pomp, and they erect over their bodies some very high rods or poles on which they hang a variety of articles and utensils which they use." This description of an early custom seems to have been substantiated by the finding, in five instances, of decayed wooden posts ranging from an inch to three and a half inches in diameter, in each case extending from the top of the skull to the surface. Reference is made by Costansó (1769, 4) to the finely finished wooden bowls of the Indians of the Santa Barbara islands, but no trace of a wooden object was found in any of the graves. The burials accompanied with the finer and more important artifacts always indicated that red paint (hematite) had
VII	INDIAN NOTES

HEYE—SAN MIGUEL ISLAND

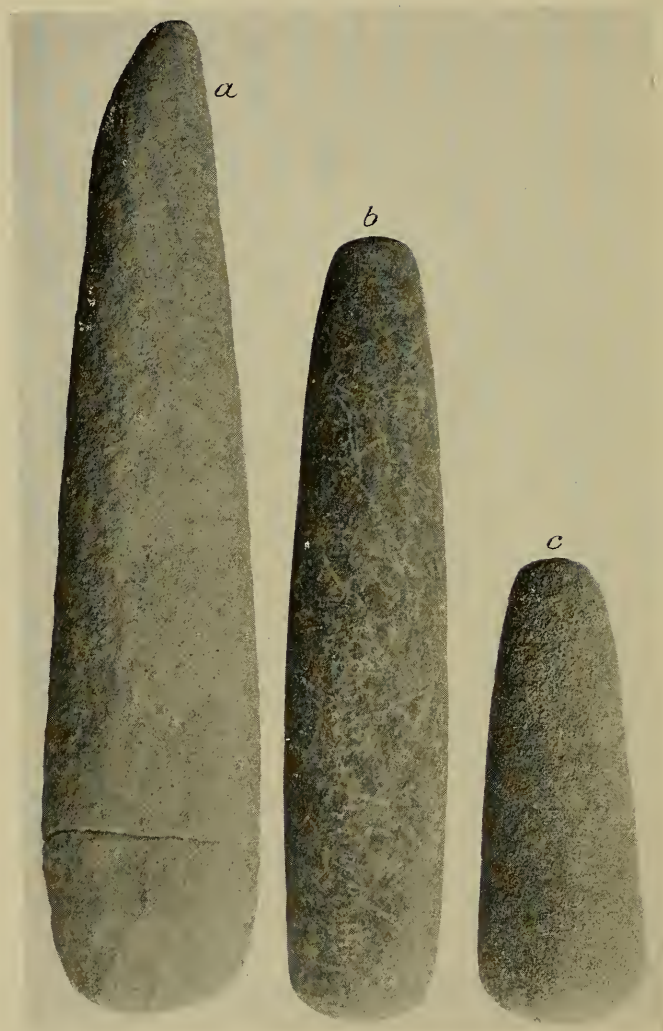


a



b

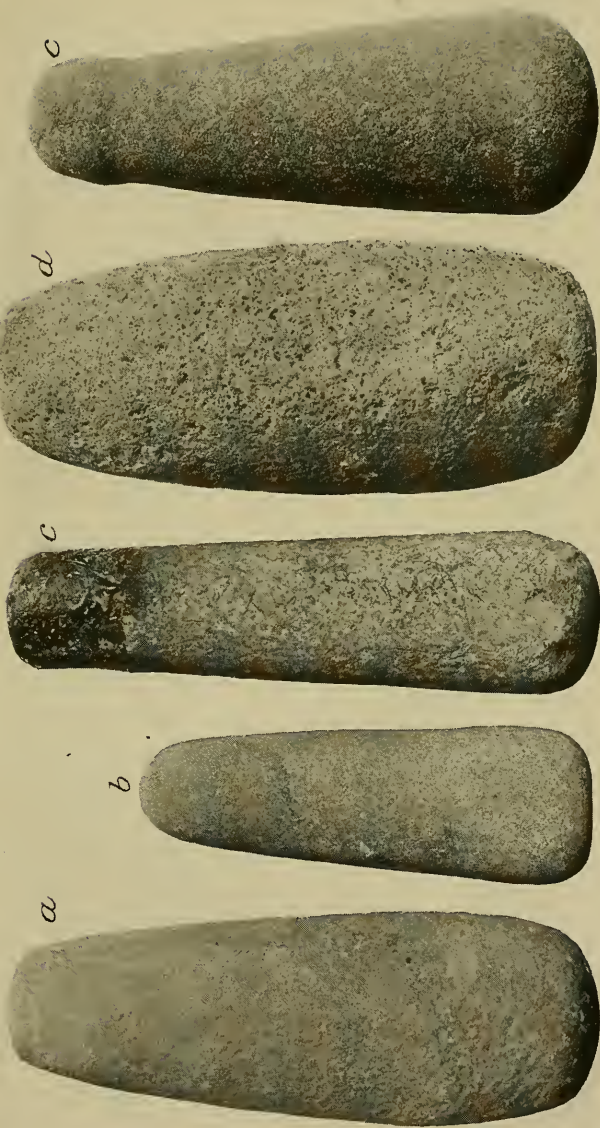
PAINT CUPS
(Height of *a*, $1\frac{1}{4}$ in.)



STONE PESTLES
(Length of *a*, 12 $\frac{3}{4}$ in.)

STONE OBJECTS	41
been placed in the graves in considerable quantities. As already intimated, the depth at which the burials were encountered was not significant of the original depth, owing to the constantly shifting sands. Many skeletons were found immediately beneath the surface; the greatest depth was fourteen feet. STONE OBJECTS The stone artifacts found on San Miguel island, although many, are not nearly so numerous as those of shell and bone. This may be readily accounted for when it is realized that no steatite is found on the island, while the small quantity of sandstone native to it is of inferior quality, owing to disintegration, and entirely too soft for implement-making. No quarry and no rejects from workshops were observed, and, indeed, practically no unfinished stone objects were found. It is therefore probable that almost all of the larger stone artifacts were procured by the natives, through exchange, from the adjacent islands or the	
AND MONOGRAPHS	4

42	SAN MIGUEL ISLAND
	mainland. There are small objects of stone, however, such as chipped blades, and paint-cups fashioned from beach pebbles, and ornaments made from natural concretions, undoubtedly manufactured on the island. VESSELS While numerous cooking vessels of stone have been reported from the coast, as well as from the islands, most of them, by far, are of steatite. An exceptional vessel is of compact sandstone (pl. III); it is smoothly finished both inside and out; the base is 2 in. thick, and the wall gradually lessens in thickness to five-eighths of an inch at the rim. This receptacle is of flattened globular form, its height being exactly two-thirds the measurement of its maximum diameter. A similar vessel, but more globular, is shown in pl. IV. As in the case of the other, it is of sandstone, finely finished inside and out. The base is $3\frac{1}{4}$ in. thick, and the wall tapers to five-eighths of an inch at the thinnest part of the rim. The inside contour of both this and the other vessel follows that of the outside, hence to produce such uten-
VII	INDIAN NOTES



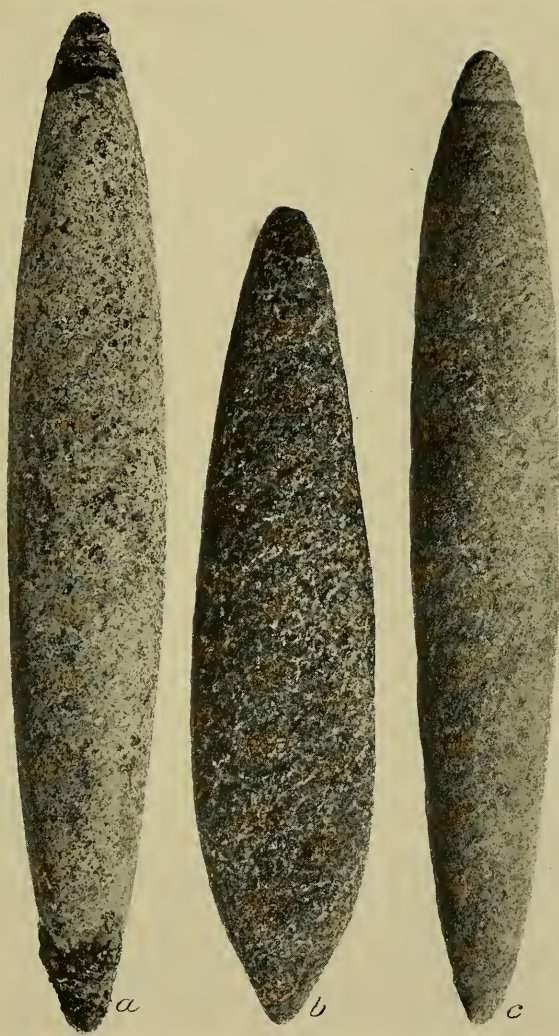
STONE PESTLES
(The first four show use as hammers. Length of *e*, $6\frac{3}{4}$ in.)



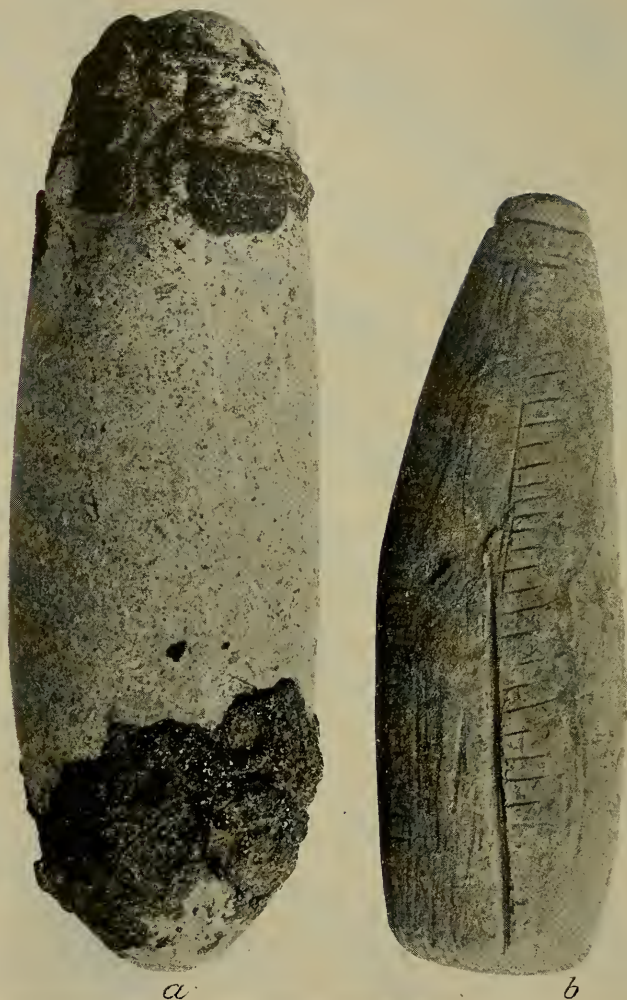
STEATITE FISH-LINE SINKERS
(Length of *b*, $4\frac{7}{16}$ in.)

VESSELS	43
sils by primitive means was not an easy task. The diameter of the mouth is small compared with that of the inside, making it appear unlikely that such vessels were used for ordinary cooking purposes. In the specimens examined there is no abrasion at the edge of the orifice, which, owing to the softness of the stone, would certainly exist if a stirring paddle had been used, as undoubtedly would have been the case had the utensil been designed for culinary purposes. On the other hand, the thickness of the walls of these vessels is always made much greater at the base than at the rim, seemingly for the purpose of enabling them better to withstand the action of fire. Springs are scarce in the region where this type of vessel is met, and often are in much higher ground than the camp-sites. In order to reach these sources of water supply, the paths were sometimes over precipitous places; hence it may be that these utensils were used for conveying water and were so formed that a minimum of the liquid would be spilled. A more practical vessel for cooking pur-	
AND MONOGRAPHS	4

44	SAN MIGUEL ISLAND
	poses is shown in pl. iv A; it is of sandstone, smoothly finished on the inside only, the outside showing the marks of pecking. This receptacle is rudely conical, with a narrow flattish base, and, as in those of the globular type, there is considerable disparity between the thickness of its wall at the base (five inches) and the rim (one inch). This vessel, of course, could have been used as a mortar, but this seems improbable, as the inside is oval rather than round. An oval cooking vessel of sandstone, the inside surface of which exhibits working by both pecking and smoothing, is illustrated in pl. v. Unlike the vessels already described, the wall of this one is almost uniform in thickness, which is seven-eighths of an inch at the rim. Near the base is a hole, nearly an inch in diameter, which had been broken through from the inside, then repaired with asphaltum in order that the vessel could be used as a water container. A well-formed hemispherical cup of black steatite is shown in pl. vi, in which the proportionately thick base is again in evidence, being $1\frac{1}{8}$ in., while the rim is only five-
VII	INDIAN NOTES



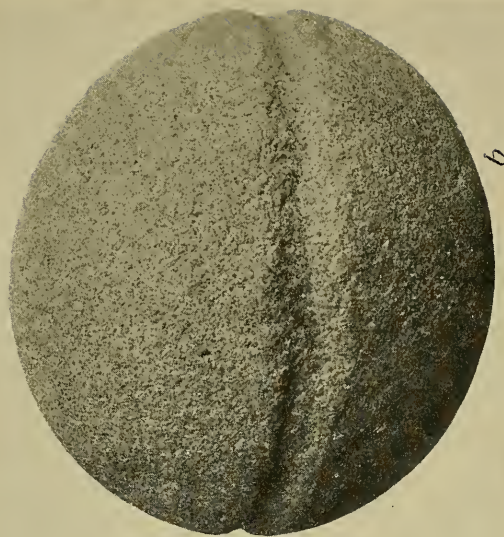
STONE FISH-LINE SINKERS
(Length of *a*, $8\frac{7}{8}$ in.)



STONE FISH-LINE SINKERS
(Length of *a*, $5\frac{3}{8}$ in.)

MORTARS - PESTLES	45
sixteenths of an inch. A cut groove on the rim was apparently made for the purpose of receiving an inlay of shell in a base of asphaltum for ornament. This, together with the fact that the edges are sharp and unfinished, indicates that it was not used as a drinking-cup, but as a paint mortar, an assumption supported by the extreme smoothness of the inside. We have noted the reason why the ancient inhabitants of San Miguel had no opportunity for becoming proficient in the art of working steatite, but they certainly bartered for this material with the natives of the neighboring islands, where many soap-stone vessels, both the finely finished globular type and the dish form, have been found. It would therefore have seemed reasonable to expect the occurrence of similar objects on San Miguel, yet not even a fragment of any of them was discovered by the expedition. MORTARS AND PESTLES One of the few unfinished stone objects found on San Miguel island is the mortar	
AND MONOGRAPHS	4

46	SAN MIGUEL ISLAND
	shown in pl. VII. This is an ordinary beach pebble in which a depression of $1\frac{5}{8}$ in. has been roughly pecked. The object shows no evidence of use, the surface of the depression not having been smoothed. Two small mortars are represented in pl. VIII. One (<i>a</i>) is of burnt limestone lightly covered outside with asphaltum, and contains remains of red hematite. It is probable that such small vessels of stone were not alone used for heating asphaltum for use in the multitude of ways in which that substance was employed by the former inhabitants of the island, but also as paint cups. A similar receptacle (<i>b</i>), also made from a beach pebble, is completely coated with red paint. Pestles of the types usual to this locality were numerous on the island. Some, such as that illustrated in pl. IX, <i>a</i>, have been used secondarily as rubbing or smoothing stones. The specimen shown gives evidence of having been worn so much on one side as almost to form a point at its smaller end. The most numerous pestles are of a hard basaltic stone; of these the one pre-
VII	INDIAN NOTES



SINKERS OF STONE
(Maximum diameter of *b*, $4\frac{1}{4}$ in.)



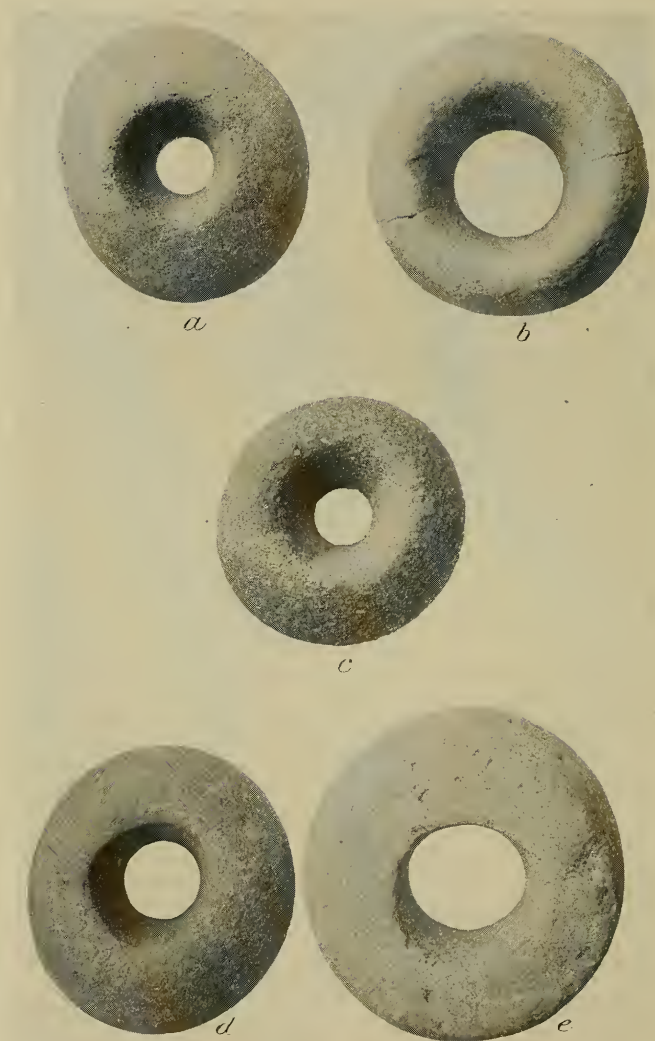
STONE SPEARPOINTS
(The longest is $5\frac{3}{8}$ in.)

P E S T L E - H A M M E R S	47
sented in pl. ix, <i>b</i>, indicates use at both ends, while <i>c</i> shows abrasion by use only on the larger end, the other being quite rough. PESTLE-HAMMERS During the entire research no hammer-stone was found on the island. Probably such implements were not needed to any great extent on account of the limited amount of stoneworking done, while random stones employed for driving wooden stakes and for other work with soft materials would hardly exhibit evidence of such use. However, that there was need of hammers or pecking implements is shown by the secondary use of pestles as such, and certainly the mortars were fashioned with tools of stone. Two pestles exhibiting use as hammers are shown in pl. x. One of these (<i>c</i>) shows battering at the larger end, and from the hematite paint and asphaltum adhering to its smaller end it would appear that it was used for stirring this mixture while in a state of flux. The pestle with two pits, one on each side, shown in <i>d</i> of the same plate, was used in the same manner	
A N D M O N O G R A P H S	4

48	SAN MIGUEL ISLAND
	as the well-known pitted hammerstones. Like the more common forms of pestles, the pestle-hammers illustrated in <i>a</i> and <i>b</i> show use at both ends. An example of a pestle with a knob-like top is exhibited in <i>e</i>, a form frequently met; but in the large series obtained none shows evidence of utilization of the small knobbed end as a tool, hence it is probable that this feature was designed to enable the user more easily to fasten a cord to it for suspension. SINKERS Situated, as the natives of San Miguel were, on a small island, they were dependent for food almost entirely on the sea and its products. It is doubtful if any game, excepting birds, could exist even on the adjacent islands, as continual hunting by what must have been a considerable population, judging by the traces found, would have exterminated nearly every form of animal life. Fish, and an occasional seal or whale, formed the chief diet of the inhabitants, hence it was to have been expected that great care was taken in the manufacture
VII	INDIAN NOTES



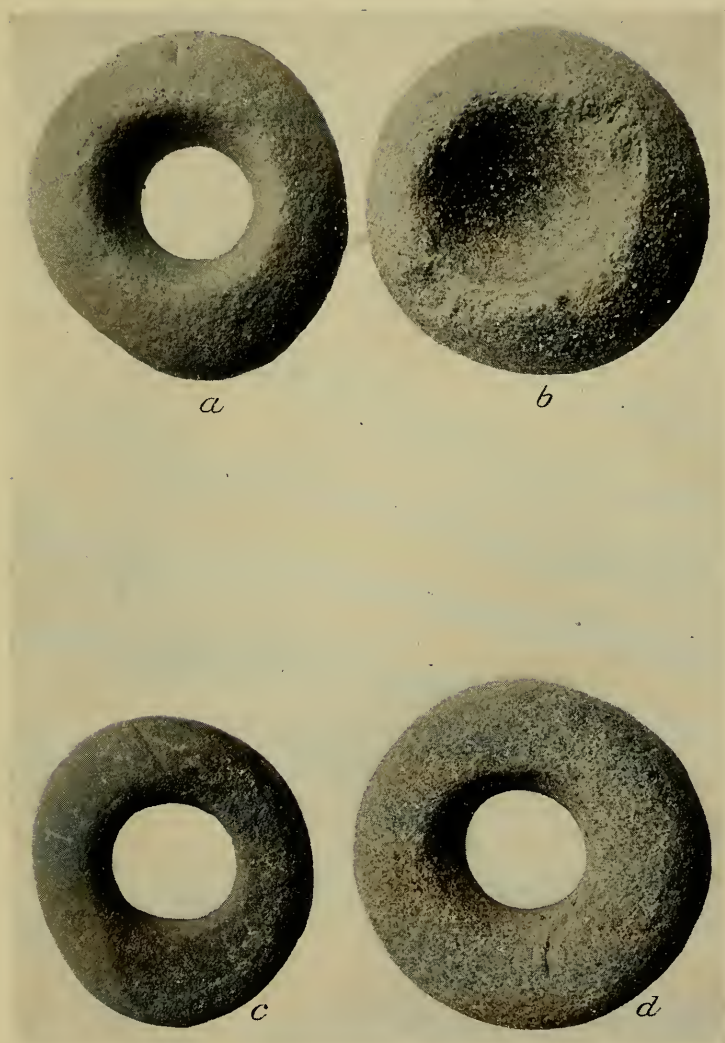
IMPLEMENTS USED IN WORKING STEATITE
(The largest is $7\frac{5}{8}$ in. long)



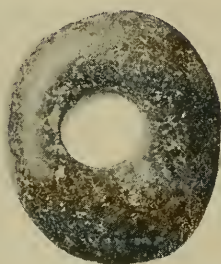
"PERFORATED STONES" OF SANDSTONE
(Diameter of *e*, $3\frac{3}{4}$ in.)

SINKERS	49
of their fishing apparatus. The stone sinkers found show considerable skill in their manufacture, and in some cases they are ornamented with incised designs. Pl. XI, <i>a</i>, illustrates a fish-line sinker of light-gray steatite, grooved at the end as a means of fastening, the cord having been attached with asphaltum, some of which still adheres. In <i>b</i> of the same plate is shown a sinker of brown steatite, without grooves, although a slight depression is observed near the smaller, tapering end to facilitate fastening in a manner similar to the other. Like sinkers of hard stone are to be seen in pl. XII, all cylindrical in form, and two of them (<i>a</i>, <i>c</i>) grooved for attachment at either end, the twisted cord marks still showing clearly in the asphalted ends of one of them (<i>a</i>). The sinker shown in <i>b</i> of this plate, of the ungrooved type, is exceptional in form, for it has two flattened faces which taper toward both ends from its widest part, where the thickness, which here reaches its maximum, is three-quarters of an inch. An example of the ornamented type of	
AND MONOGRAPHS	4

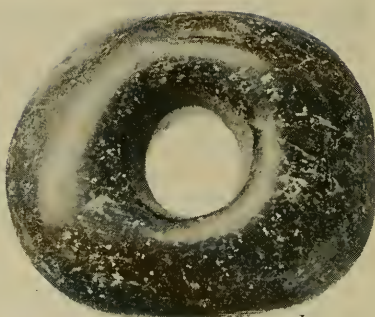
50	SAN MIGUEL ISLAND
	stone sinker is given in pl. XIII, <i>b</i>; it is grooved only at one end, and has a blunt base. This sinker is fashioned from soft sandstone, hence the incised decoration, four times repeated, was easily effected. This ornamentation, consisting of a single deep line with numerous short parallel lines at right angles along one side, is found with minor variations on the nine specimens of this type found on San Miguel, thus precluding the probability that this arrangement of lines represented an individual property-mark or decoration. A sinker made of a beach pebble slightly ground on four sides is shown in pl. XIII, <i>a</i>. No attempt was made to groove this object, and judging by the impression of the cording, still seen in the asphaltum, by which it was fastened, the sinker had been wrapped at each end for a quarter of its length. Pl. XIV, <i>a</i>, illustrates a spherical beach stone that has been ground at one point to produce a small projection with a slight depression around it, thus making its use as a sinker possible by the attachment of a line through the usual application of asphaltum.
VII	INDIAN NOTES



“PERFORATED STONES” OF SANDSTONE
(Diameter of *b*, which is in process of manufacture, $2\frac{5}{8}$ in.)



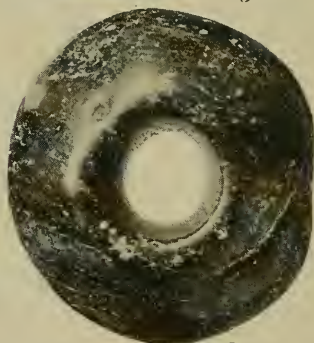
a



b



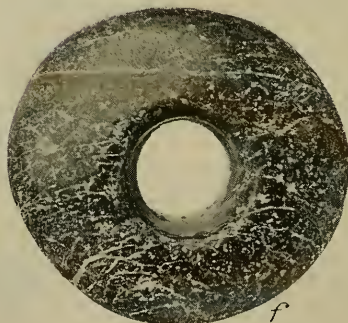
c



d



e

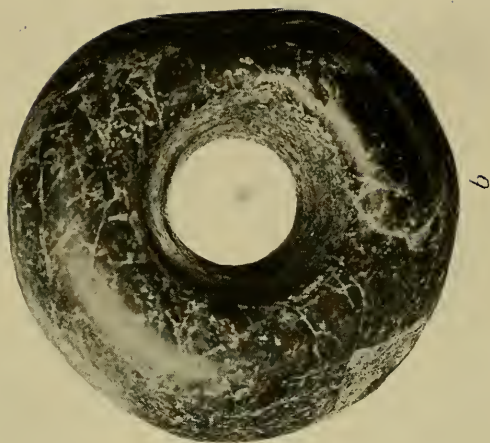
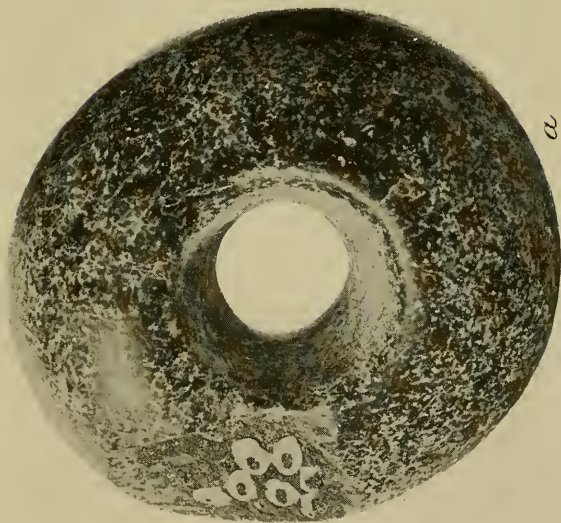


f

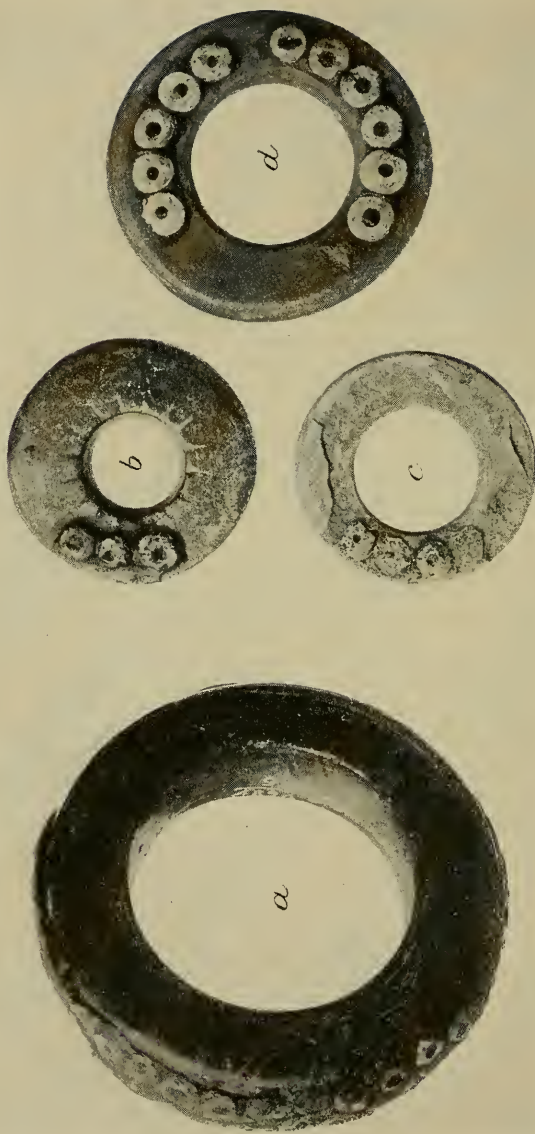
“PERFORATED STONES” OF DARK-GREEN STEATITE
(Maximum diameter of *b*, $4\frac{1}{4}$ in.)

SPEARPOINTS-TOOLS	51
Ordinary pebbles grooved for use as sinkers, such as seen in pl. XIV, <i>b</i>, were frequently encountered, but none of the specimens of this class shows use as a hammer, nor does asphaltum adhere to any of them, hence it may be assumed that the cords were attached with simple knots. SPEARPOINTS Long, carefully finished spearpoints of hard stone, of the same type as those commonly made of bone (pl. XLVI), are scarce, only the three represented in pl. xv having been found. These objects are carefully finished and are slightly flattened on two sides, at the base. STEATITE-WORKING TOOLS One of the few evidences of active stone-working discovered on San Miguel are the four crudely-chipped, pointed, stone implements of the pick form shown in pl. XVI. These are of the same type as the well-known tools for working steatite, found in many parts of the United States. The smaller	
AND MONOGRAPHS	4

52	SAN MIGUEL ISLAND
	examples of this type would make admirable reamers. PERFORATED STONES Perforated stones, found so commonly on the western coast of the United States, were numerous on San Miguel island. These problematical objects have been discussed at length by Putnam (1879) and by Henshaw (1887), both of whom reached the conclusion that they were used for a variety of purposes. The perforated stones from San Miguel island include all the known sizes and types, exclusive of the ones with projections. Both sandstone and steatite were used in their manufacture, the latter material predominating in about ninety per cent of the specimens. Those of sandstone are illustrated in pl. xvii and xviii. Specimens <i>b</i>, <i>d</i>, and <i>e</i> of pl. xvii have large and fairly straight perforations, while <i>a</i> and <i>c</i> have been treated biconically so that their central apertures are quite small. The perforations in <i>a</i> and <i>e</i> are very smooth, that of <i>e</i> showing a slight polish, while in the other
VII	INDIAN NOTES



“PERFORATED STONES” OF DARK-GREEN STEATITE
(Diameter of *a*, $5\frac{1}{2}$ in.)

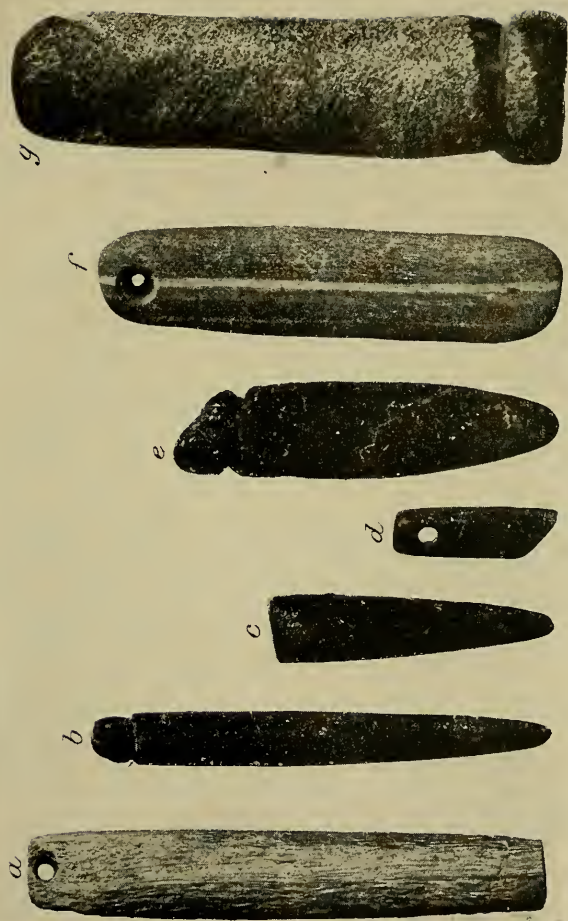


STONE RINGS INLAID WITH SHELL DISCS
(Diameter of *a*, $2\frac{1}{4}$ in.)

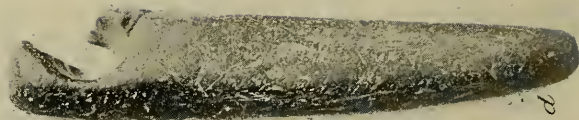
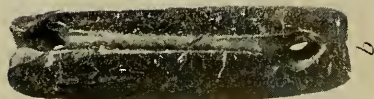
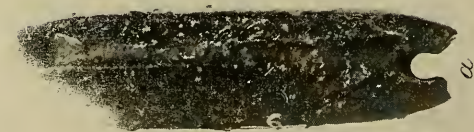
three examples no evidence of smoothing, either intentionally or through use, is found. Three others of the large, rough-hole type are depicted in pl. XVIII, *a*, *c*, *d*, while *b* shows one that is deeply pitted on both sides and much battered on the edge, which probably caused its rejection before it was finished.

Most of the perforated stones of steatite are not so symmetrical as those made of sandstone. Although some circular ones were recovered, such as that shown in pl. XIX, *f*, many are irregular in form, but in none of these is shown any attempt at polishing the sides of the holes, which are of the wide, smooth variety. Unlike the sandstone specimens, those of steatite show high polish on the outer surface, with the exception of *e*, the original surface of which has been destroyed by drifting sand. These specimens vary in thickness from five-eighths of an inch (*e*) to $2\frac{7}{8}$ in. (*d*), and all are dark-green in color. Another, of the same material, is represented in pl. XX, *b*, the chief feature of which is a flattened area on one side. A perforated stone which has

54	SAN MIGUEL ISLAND
	been flaked at one point, the broken part then covered with asphaltum and inlaid with small shell disc-beads, is shown in <i>a</i> of the same plate. Six of the beads are oval and are made from the keyhole limpet, while the remaining one is circular and is cut from the side of an olivella. The perforation of this circular stone is large and of the biconical type; the sides of the aperture are quite rough, although the outside surface of the object is highly polished. The presence of the shell inlay would seem to preclude the use of the specimen for utilitarian purposes, for, had it been so employed, the asphaltum, even when newly applied, would have been easily dislodged. RINGS A modified form of the above class of objects, but showing finer workmanship throughout, are the stone rings. Not many were found by the Museum expedition, and they have no feature worthy of mention except in the examples illustrated in pl. XXI. Of these, <i>d</i> is of dark-brown stone, and, like all the other examples shown, is carefully
VII	INDIAN NOTES



PENDANTS OF STONE
(Length of *g*, $2\frac{5}{16}$ in.)



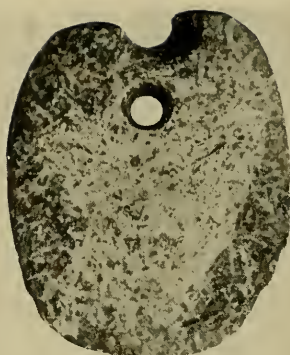
STEATITE PENDANTS
(Length of *a*, $3\frac{3}{8}$ in.)

ORNAMENTS	55
finished. Both sides have been covered with asphaltum and inlaid with the common shell-discs made from the side of an oliva or an olivella shell. The ring represented in <i>b</i> is of gray steatite and bears evidence of the inlay on one side only; the rim of its central aperture is ornamented on both sides with short, incised, radiating lines. Fig. <i>c</i> of the plate illustrates a ring made of gray sandstone which also has inlay only on one side. The dark steatite ring (<i>a</i>) is the only one in the collection with an incrustation of shell beads on the edge. ORNAMENTS Stone objects for personal adornment, excepting beads, were rather uncommon on San Miguel, most of such ornaments being of shell and bone. Pl. xxii exhibits various kinds of stone pendants. Of these, <i>a</i> is of gray steatite, cylindrical in form except at the perforated end which is somewhat wedge shape; another (<i>b</i>), of black steatite, is of the same type but is provided with a groove instead of a perforation, and is not flattened at the end; particles of asphaltum	
AND MONOGRAPHS	4

56	SAN MIGUEL ISLAND
	adhere to the groove, indicating that a cord for suspension was attached in this manner. The small, conical, black steatite pendant, without groove or perforation, illustrated in <i>c</i>, was undoubtedly suspended in like manner. The small pendant of similar material (<i>d</i>) was made from a longer one, as the angle of the base, although somewhat smoothed, still reveals the fracture. The grooved cylindrical pendant (<i>e</i>), also of dark steatite, was at one time evidently inlaid with shell discs, as it is almost entirely covered with asphaltum. A pendant made from a natural beach pebble is shown in <i>f</i>, the only trace of working, besides the perforation, being at the base, which has been slightly ground on the broader sides. An unfinished object of gray steatite (<i>g</i>), which may have been designed for use as a pendant, is interesting from the fact that it combines, although at opposite ends, both a groove and the beginning of a perforation; the drilling of the latter was commenced from each side, but did not entirely penetrate the stone. A pendant similar to some of the above,
VII	INDIAN NOTES



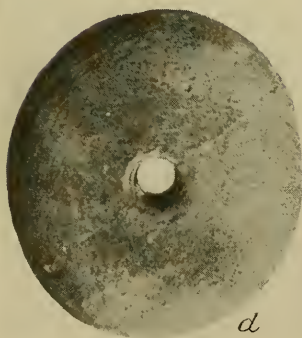
a



b



c

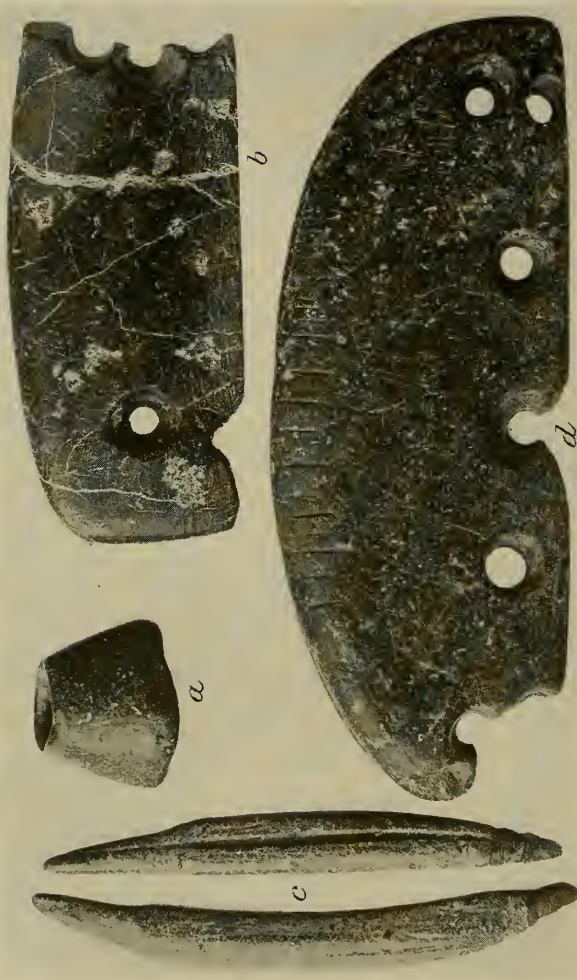


d



e

STEATITE PENDANTS
(Height of *e*, $2\frac{1}{8}$ in.)

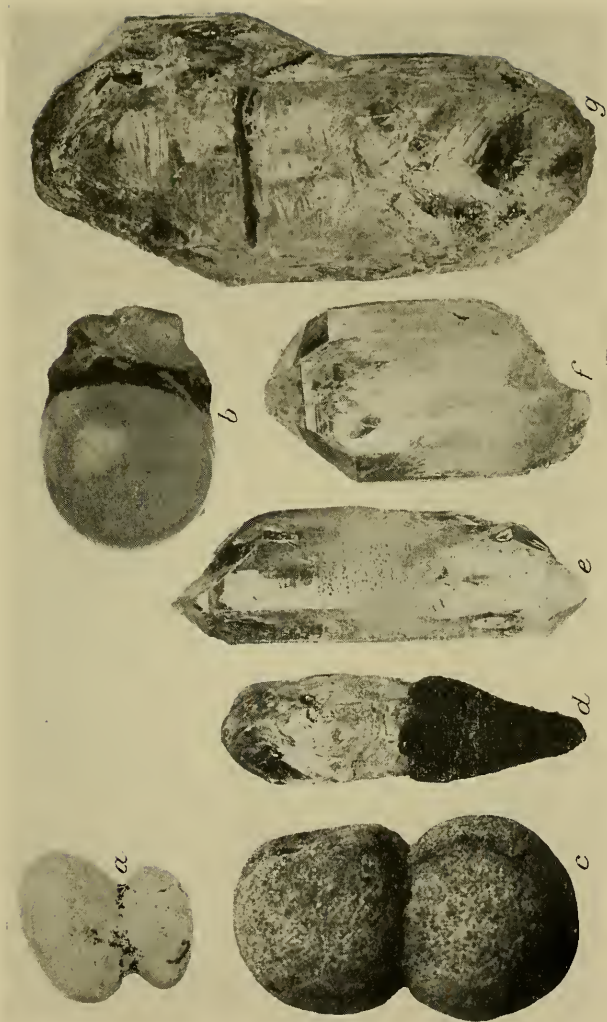


OBJECTS OF STEATITE
(Length of *d*, $2\frac{3}{4}$ in.)

and also of black steatite, is illustrated in pl. XXIII, *d*; it is of the pointed cylindrical type, but varies in so far as it has a much larger hole for suspension.

A more elaborate class of stone ornaments for personal adornment is shown in pl. XXIII, *a*, *b*. These also are cylindrical, and are drilled at each end as if a tubular bead had been contemplated. These depressions are shallow, and each meets a hole drilled at a right angle with the body of the bead. The small holes are connected by grooves, considerably widened at the points of contact with the holes to prevent chafing of the string or thong by which they were suspended. Specimens *a* and *b* differ in that in the latter specimen one hole slants to the left and one to the right, while in the former the perforations are almost parallel. A flat, almost rectangular ornament of light-gray steatite (*c*) is drilled lengthwise at the upper end, and is met by a small transverse hole drilled from the face. At the lower end another hole has been drilled through its flat surfaces, but there is no drilling in the end. On the other face a groove con-

58	SAN MIGUEL ISLAND
	nects the upper end with the perforation at the base. Flat, more or less rounded pendants of steatite are shown in pl. xxiv. Of these, <i>a</i> is of gray steatite, and is only three thirty-seconds of an inch thick, while <i>d</i> is one of the heaviest of its size, being half an inch in thickness. The original perforation of the pendant illustrated in <i>b</i> has been broken out and another drilled slightly below it; it is light-green in color, while that of <i>c</i> is dark-green, and <i>e</i> is black. Other steatite objects for personal adornment are shown in pl. xxv. The small, truncated cone-shaped object (<i>a</i>) has a large perforation, which may have been filled with asphaltum and used as a setting for a crystal (such as is shown in pl. xxvi), or for some other precious material. The two curious objects of black steatite shown in pl. xxv, <i>c</i>, grooved on one side, have been more or less pointed at the upper end by being inserted in one of the openings in such an implement as is shown in <i>b</i> and <i>d</i>, and turned back and forth. Such a process is suggested by the striation at the end. The
VII	INDIAN NOTES



NATURAL CONCRETIONS AND CRYSTALS
(Length of *g*, $1\frac{1}{4}$ in.)



a



b

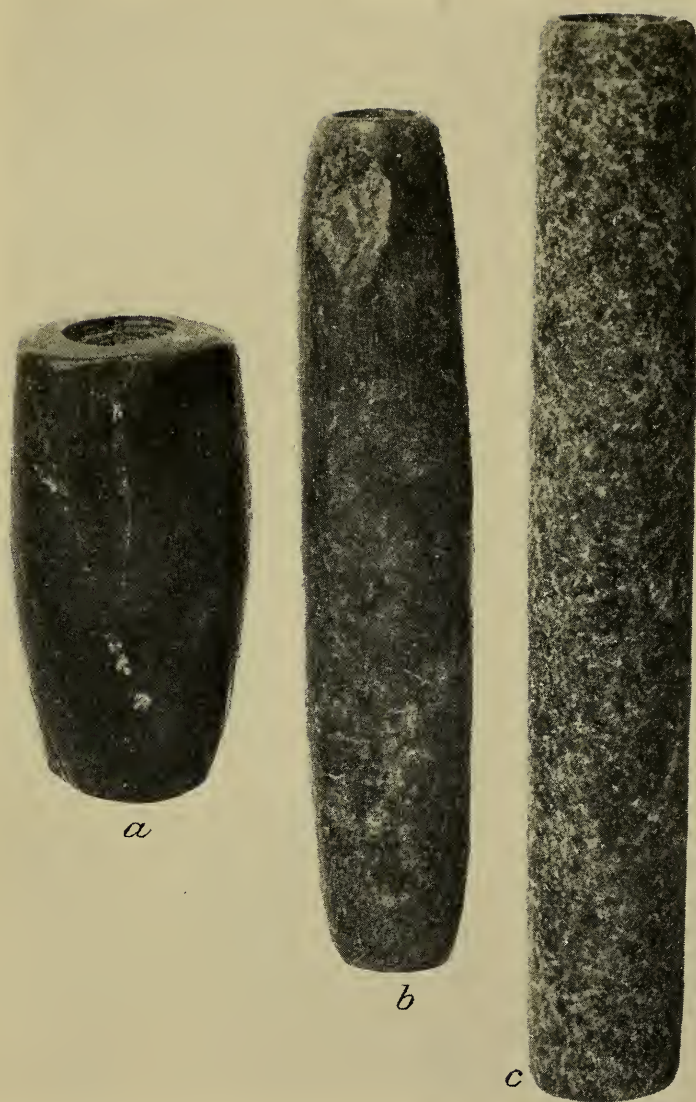


c

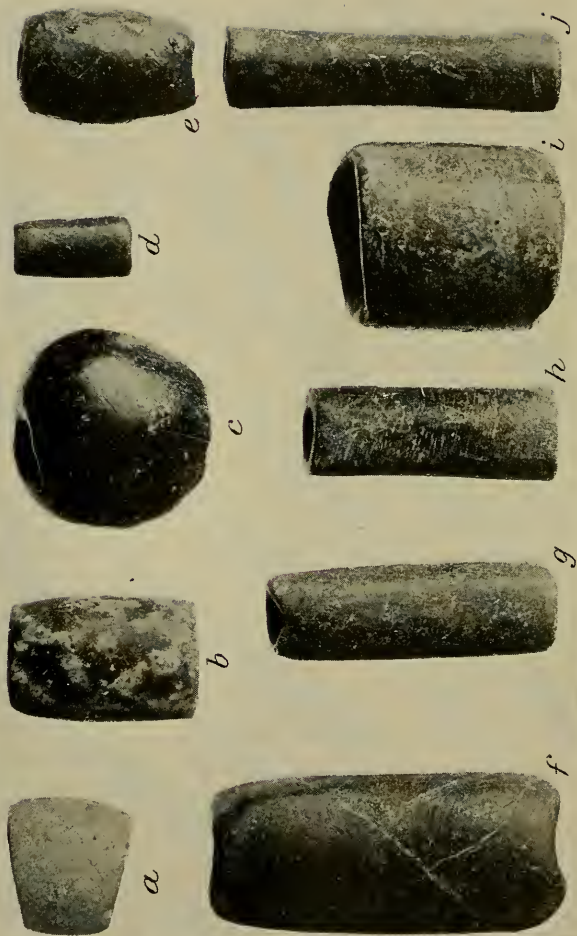
SMOKING PIPES
(Length of *c*, 8 in.)

ORNAMENTS	59
two flattish perforated objects referred to are likewise of black steatite, which experiment shows, however, to be much harder than that of the pair of grooved and pointed specimens. Asphaltum still adheres to one of the ends of each of the latter, which bears the marks of a fine cord wrapping, indicating their use as pendants. They were found at the base of a skull, and as no others were discovered, it is likely that they were ear-pendants. Specimens <i>b</i> and <i>d</i> both afford evidence of having been bound to some object when in use. The lower edges of both are straight, and perforations have been broken out and replaced with others. It does not seem that all the holes in these specimens were necessary for the purpose of attachment, hence they may have been employed for rounding and smoothing slender objects, as above suggested. Small, natural concretions and rock crystals also were used as ornaments. Pl. xxvi, <i>a</i>, <i>c</i>, are grooved stones of natural formation, the groove in the latter, however, being emphasized in one or two places by slight grinding. Traces of asphaltum in and near	
AND MONOGRAPHS	4

60	SAN MIGUEL ISLAND
	the grooves indicate the method of attachment to necklaces or the like. Specimen <i>b</i> is a smooth, translucent yellow concretion with a globular end, while the other end has been flaked, and the marks of the cord once attached to it are still plainly discernible in the asphaltum band. Rock crystals were used to a considerable extent as ornaments, as many were found in the graves. Not alone were they used as settings in bone pins (pl. LIX, <i>a</i>), but also as pendants, the cord-marks on the asphaltum-covered end of <i>d</i> showing distinctly. The crystals shown in <i>e-g</i> also indicate, by the adhering particles of the ever-useful asphaltum, that they had been used in one of the ways mentioned. PIPES Tubular smoking pipes of stone from San Miguel are not numerous, and none were found by the expedition. In the Museum's collections, however, are the three examples shown in pl. XXVII. Of these, <i>b</i> is of the plain type, of black steatite. A more ornate specimen of the same type is
VII	INDIAN NOTES



STEATITE TUBES
(Length of *c*, $3\frac{5}{8}$ in.)



BEADS OF STEATITE
(Length of *f*, $1\frac{3}{4}$ in.)

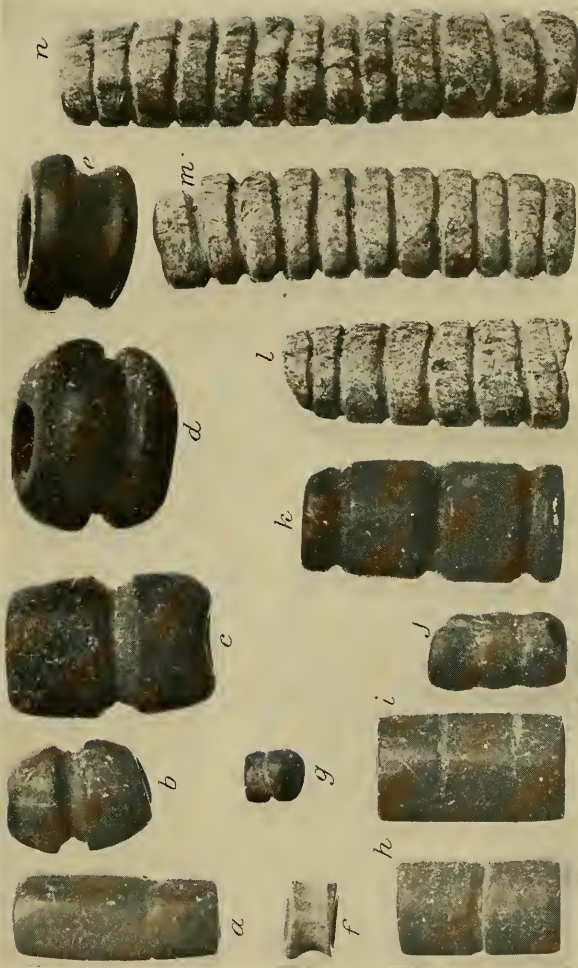
shown in *c*. The three ridges on this pipe greatly enhance its appearance. The bone mouth-piece is fixed in place with asphaltum. The smallest of the pipes (*b*), of white limestone, was generously presented to the Museum by James B. Ford, Esq.

TUBES AND BEADS

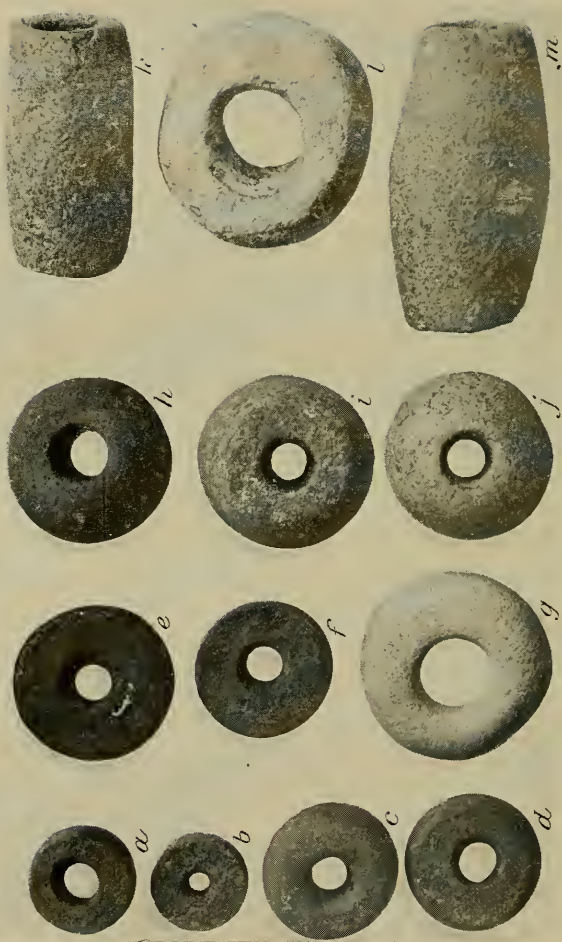
Steatite tubes longer than that represented in pl. XXVIII, *c*, were not found on San Miguel. This one was undoubtedly used as a bead, as it was discovered near the neck of a skeleton, in association with smaller tubes of the same character. The Museum collections, however, contain a tube which measures 10 in. in length by $1\frac{3}{8}$ in. in diameter; it is similar to the above, except that both ends are serrated.

Other cylindrical beads of steatite are shown in plate XXIX, the forms varying from barrel-shape to those with in-curving sides. A variation is seen in *i* of this illustration, which has a wall only a sixteenth of an inch thick and which resembles in shape the bone bead shown in pl. LXVIII, *c*; indeed it may have been intended as an imitation

62	SAN MIGUEL ISLAND
	of a bead of that material. A notable feature of these stone beads is the fact that they are as finely finished on the inner as on the outer surface. The aperture, rather than being biconical as in the case in many stone beads, is perfectly straight. Various steatite beads with one or more grooves are shown also in pl. xxx. The ends of these are well finished, with the exception of <i>g</i>, which is probably only a fragment of a long bead, as the lower end is not smooth. The specimens indicated by <i>c-e</i> have traces of asphaltum in their grooves, probably as an aid in suspending other ornaments when the beads were worn as in a necklace. Specimens <i>l-n</i>, of gray steatite, exhibiting many grooves, are finely finished both on the ends and in the bore. Beads of stone other than steatite were frequently met, most of them made from a dark-red sandstone. Globular beads of this material are seen in pl. xxxi, <i>h-j</i>, although <i>i</i> is slightly flattened at each of its broader sides. The cylindrical bead (<i>k</i>) is of identical material, and the barrel-shaped one (<i>m</i>) is of yellow sandstone. The
VII	INDIAN NOTES



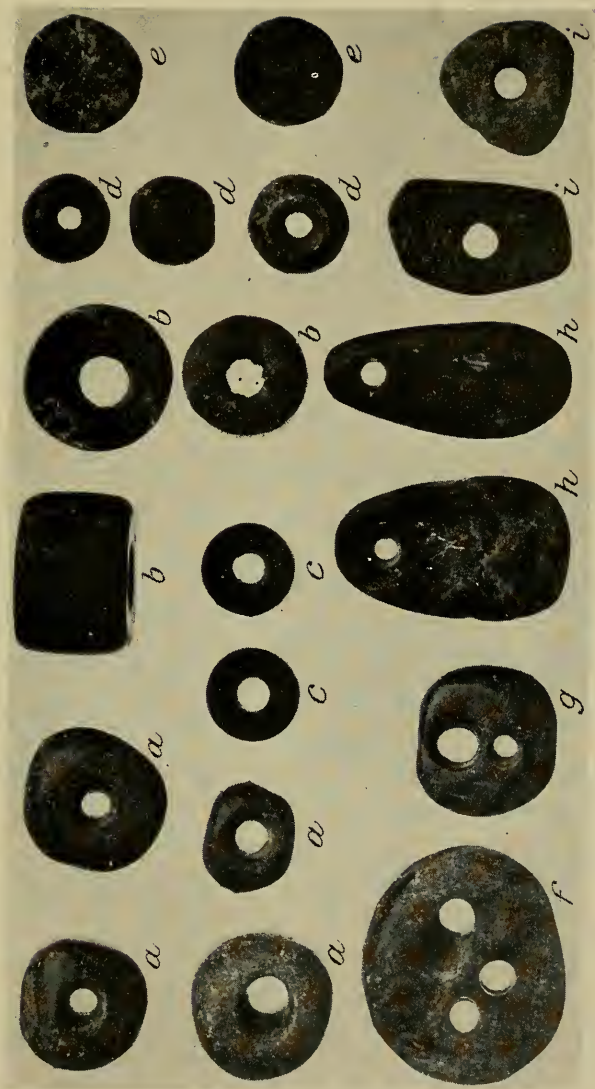
GROOVED BEADS OF STEATITE
(Length of *n*, $2\frac{1}{8}$ in.)



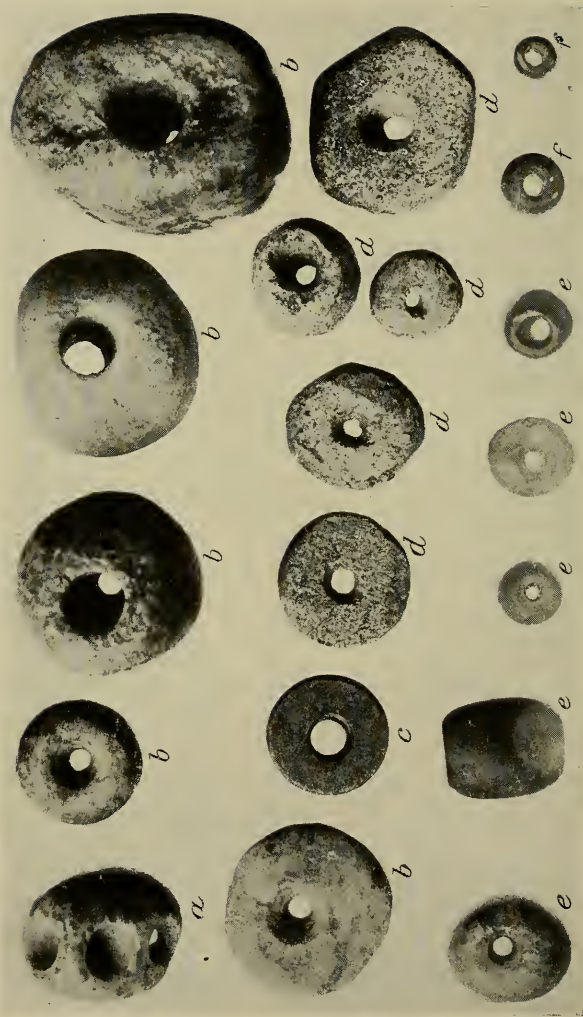
BEADS OF STONE
(Length of *m*, 1 $\frac{1}{4}$ in.)

B E A D S	63
only specimen of this class manufactured from a coarse white sandstone is shown in <i>l</i>; it is crude in both form and finish, as the material is not adapted to superior workmanship. Well-finished disc-beads of dark-red ferruginous stone are represented in <i>e</i> and <i>f</i>, while <i>g</i> is of a light-pink, clay-like stone. Beads of various shapes, made of light-red sandstone, are shown in <i>a-d</i>. Of these, <i>a</i> takes the form of a truncated cone. Small steatite beads and other ornaments are presented in pl. xxxii. Crudely shaped ones with rounded sides (<i>a</i>) are numerous, but the more highly finished examples (<i>b</i>), and the smallest ones (<i>c</i>), were found in great numbers; in fact, more of the latter were recovered than all the other stone beads together. The beads of globular form with flattened ends (<i>d</i>) are also well finished, but are comparatively rare. The flat discs (<i>e</i>) are probably blanks such as those from which beads were made, although they also might conveniently have been used as inlays, which is likewise the case in the specimens with three (<i>f</i>) and with two (<i>g</i>) perforations. A relatively smooth surface,	
A N D M O N O G R A P H S	4

64	SAN MIGUEL ISLAND
	such as the inner side of a shell, would not readily adhere to asphaltum, hence the inlays would easily fall off; but when perforated, the stone or shell discs became much more firmly imbedded. This matter will be discussed later. Two small, flat pendants of steatite are shown in <i>h</i> of the plate, while <i>i</i> presents irregular flat beads of the same material. Almost all the small beads and pendants are of the black variety of soapstone, which, although of greater hardness than the other kinds, and therefore not so readily worked, was susceptible of better finish and insured greater durability of the ornaments made thereof. Materials other than steatite were likewise, though seldom, used in the manufacture of beads. Examples are illustrated in pl. XXXIII, some of which, like <i>a</i>, of a type common to Mexico, are of light-green serpentine. The bead referred to is not perforated centrally, but has two holes drilled from each end at an angle. Others of the form commonly met with in Mexico (such as <i>b</i>) are of the same material and were un-
VII	INDIAN NOTES



BEADS OF BLACK STEATITE
(The longest specimen (*h*) is $\frac{5}{8}$ in.)



STONE BEADS

(The maximum diameter of the largest (*b*) is 1 in.)



STONE SWORD OR CLUB
(Length, $18\frac{1}{4}$ in.)

SWORD OR CLUB	65
questionably obtained from the South by barter. The beads indicated as <i>e</i> are barrel-shape ones of amethyst, a material not native to San Miguel. Only eleven of these were found, all in one grave. A few beads made from steatite, but of a color different from those above described, were also found, but their forms do not differ from the beads of black soapstone. A finely finished disc-bead of an emerald-green steatite is illustrated in pl. XXXIII, <i>c</i>, while those lettered <i>d</i> show examples of crudely-finished beads of light-gray stone of the same kind. In <i>f</i> are exhibited two of five finely-finished beads of translucent brown steatite, the only specimens of this variety recovered. SWORD OR CLUB In the collections of the Museum is the finely-finished object of stone shown in pl. XXXIV; it bears the shape of a sword, and probably was used either as such or as a club. Along its upper edge is a shallow groove that extends the entire length of the implement, designed possibly to receive an	
AND MONOGRAPHS	4

66	SAN MIGUEL ISLAND
	inlay of shell discs imbedded in asphaltum, such as was so commonly employed by the San Miguel islanders for decoration. A practical handle is provided by the knob-like end. CHIPPED OBJECTS The ancient inhabitants of San Miguel island were expert in the art of stone-chipping, and no finer examples of such handicraft have been found, not even the remarkable points from Columbia river excelling them. Various kinds of stone were employed in this process, but chalcedony predominated, with obsidian the next in favor. Pl. xxxv illustrates in color a knife-blade of light-gray chalcedony, the butt end of which retains traces of its former wooden handle with the asphaltum bedding adhering to it. Each side of the knife bears a cross rudely painted with hematite (oxide of iron). No record has been found of any painted chipped implement from the western part of the United States, but Mr Clarence B. Moore mentions one found by
VII	INDIAN NOTES



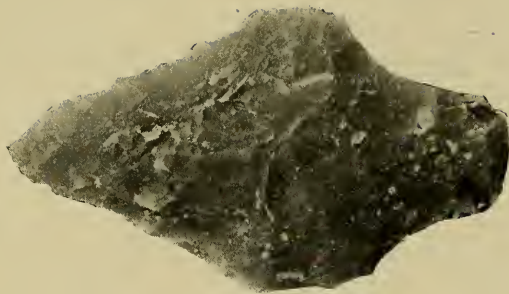
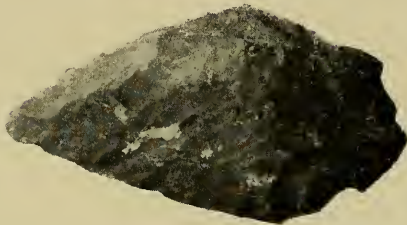
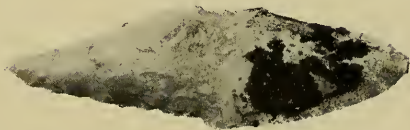
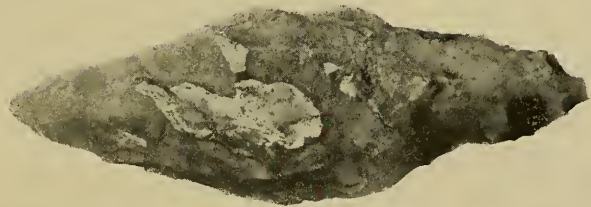
PAINTED CHALCEDONY KNIFE
(Length 6 7-8 in.)

CHALCEDONY BLADES	67
him in Florida, although it has no traceable design. (Certain Aboriginal Remains of the Northwest Florida Coast, Part I, p. 438). Smaller knife-blades of chalcedony, still retaining some of the asphaltum with which the handle was secured, are shown in pl. xxxvi. The smaller blades of this type are readily distinguished from projectile points, as they are much thicker at the center, and are not nearly so well finished, care having been taken only with the cutting edges. Various forms of knife-blades and small projectile points are represented in pl. xxxvii. Of these, the one shown in the upper right-hand corner is an almost circular scraper, the only one of this type recovered, and is of such a delicate character that it could well have been used in the manufacture of the finest of the shell ornaments. Like the other artifacts shown in this illustration, it is of chalcedony. Pl. xxxviii exhibits blades with stems and barbs, and some of them have serrated edges. The largest implement shown in the plate is probably a knife-blade, for, unlike the projectile points, it is thick at	
AND MONOGRAPHS	4

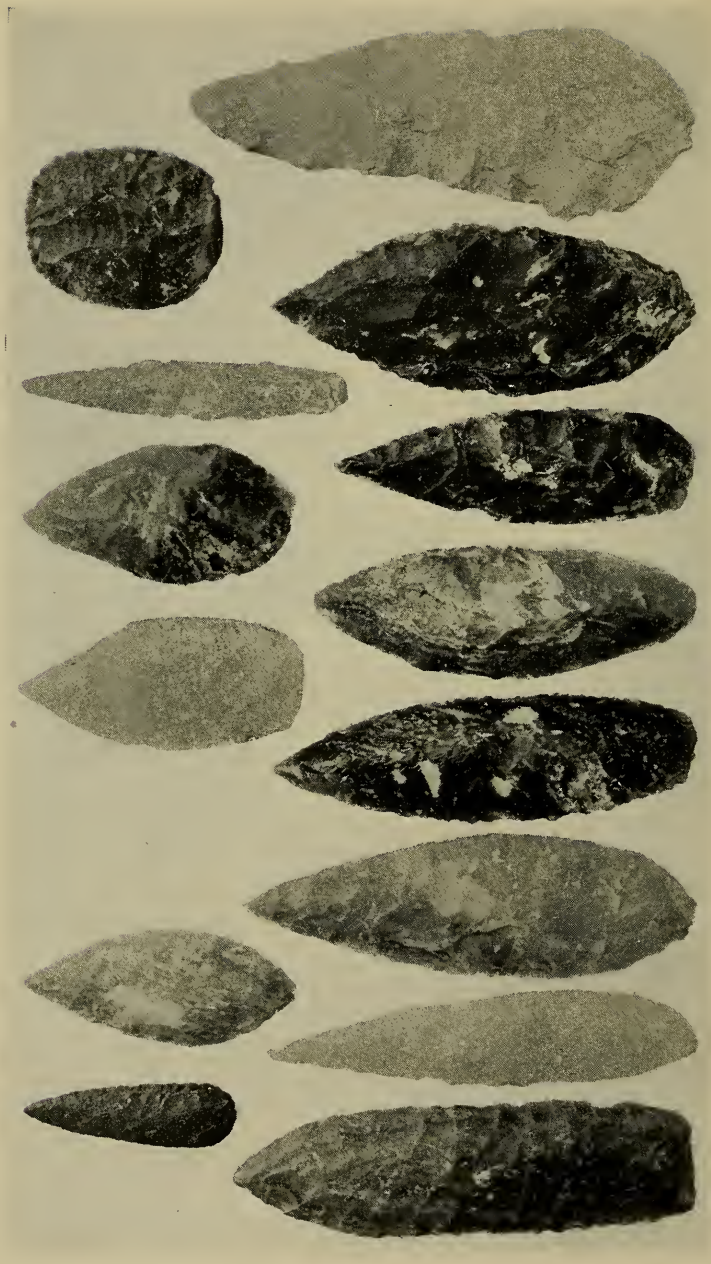
68	SAN MIGUEL ISLAND
	the center, although knife-blades are not usually provided with stems. Still other forms of points are illustrated in pl. XXXIX and XL, many with serrated edges. Pl. XXXIX, <i>c</i>, shows a unique specimen, as there are only three teeth, widely-spaced, on each side. Drill-points of various forms are illustrated in pl. XXXIX, <i>a</i>, <i>b</i>, and in most of the lower row of pl. XL. Representative chipped knife-blades of chalcedony, with the asphaltum mounting and fragments of the wooden handles, are depicted in pl. XLI. Of all the chipped implements from San Miguel, the finest example is shown in pl. XLII. It is of a light-brown, semi-transparent chalcedony, and at its thickest part measures only an eighth of an inch. The object is of entirely too delicate a character to have been utilitarian; it may have been hung from the neck as a pendant, although its shape would seem to preclude its use as such, or it was possibly set in a bone shaft and used as a hair-ornament. An interesting chalcedony implement, nothing similar to which was found, is shown
VII	INDIAN NOTES

HEYE—SAN MIGUEL ISLAND

PL. XXXVI



KNIFE BLADES OF CHALCEDONY
(The longest is $2\frac{1}{2}$ in.)



ARTIFACTS OF CHIPPED CHALCEDONY
(The longest one is $3\frac{3}{4}$ in.)

in the first of the objects illustrated in pl. XLIII. It was originally a chipped blade of the ordinary type, but exhibits secondary use as a reamer, as it is worn round and smooth for nearly half its length. The other specimens shown in this plate are unworked flakes of brown chalcedony, of which 213 were found accompanying two burials. With little labor they could have been made into drills similar to some of those shown in pl. XL, to which attention has been called. Crude as they are, it would have been possible also, by reason of their sharply fractured edges, to use them in fashioning shell ornaments. Flat stone flakes with secondary chipping to adapt them for use as scrapers are shown in pl. XLIV, although from its shape the one at the extreme left might also have been used as a reamer.

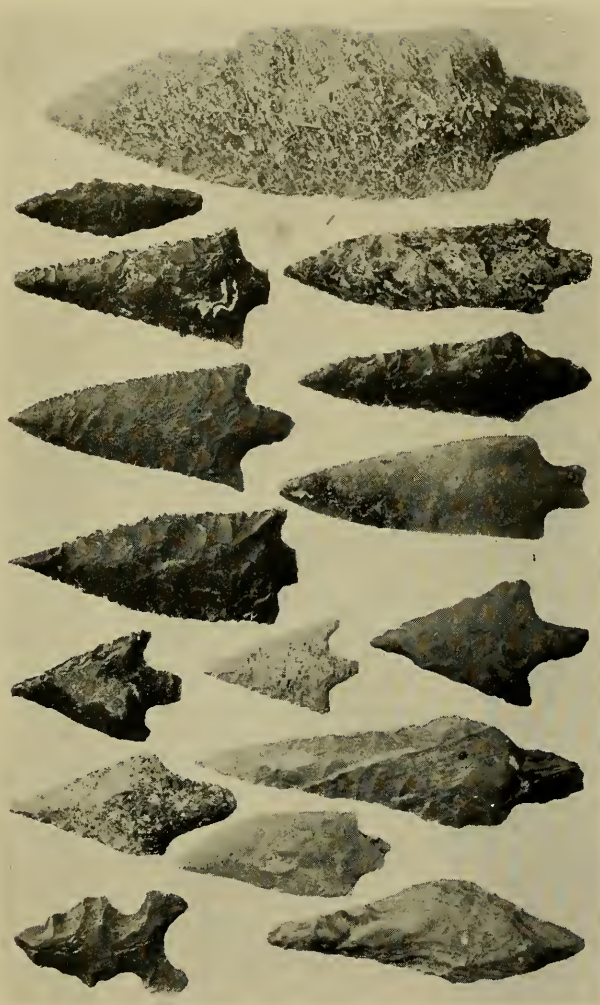
Obsidian, used also to a large extent for blades and points, does not seem to have been so adaptable as chalcedony for the finer chipping, as few obsidian artifacts noteworthy in this respect were found. The large obsidian knife-blades particularly were



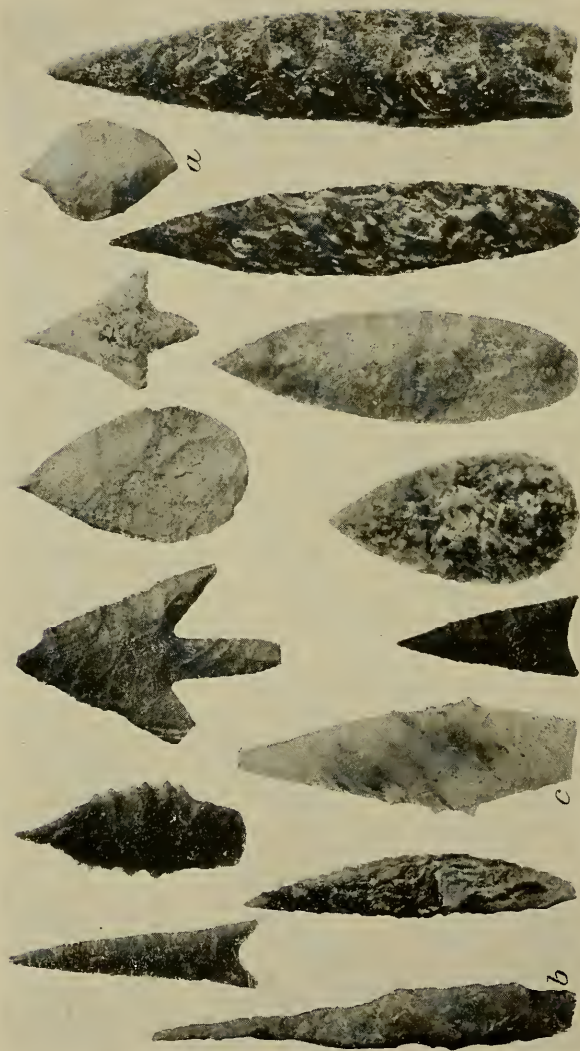
FIG. 1.—Obsidian knife.
(Length $6\frac{7}{8}$ in.)

rather crudely made, the chips being large and irregular, as is plainly shown by the example presented in fig. 1.

In pl. XLV smaller blades of the same material are shown, many of them of crude workmanship. The points exhibiting the best finish are those represented in *a*, *b*, the latter being superior. The small point illustrated in



ARROW AND SPEAR POINTS
(The largest is $5\frac{7}{8}$ in. long)



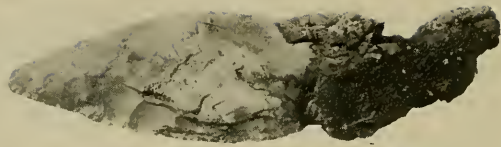
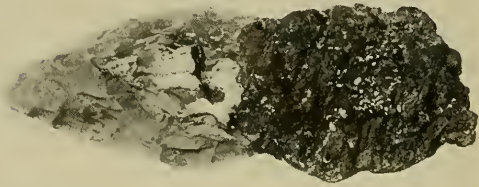
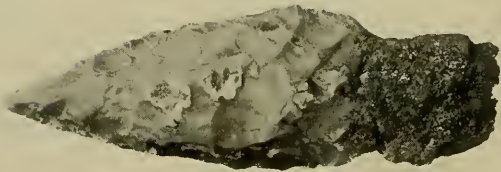
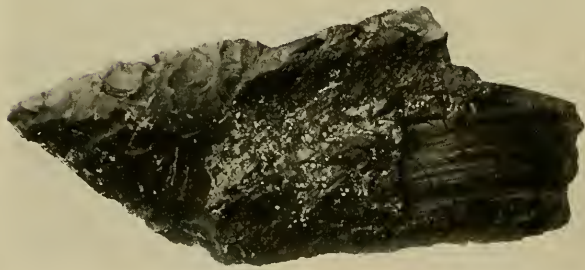
DRILLS AND ARROWPOINTS
(The longest is $3\frac{1}{8}$ in.)



ARROWPOINTS, KNIVES, AND DRILLS
(The longest is 3 in.)

HEYE—SAN MIGUEL ISLAND

PL. XLI



KNIFE BLADES WITH BITUMEN MOUNTING
(The first specimen measures $3\frac{1}{4}$ in.)

a may have been used as a reamer, as the depressions in the two edges, rather than showing intentional chipping, give evidence of having been caused by wear.

That some of the Chumash, however, could work obsidian as well as other tribes, is shown by the finely finished, notched



FIG. 2.—Obsidian hook. (Length, $1\frac{1}{8}$ in.)

hook illustrated in fig. 2. From the brittle nature of the material, the use of this object as a fishhook is not probable. The possible use of hooks in general as pendants will be referred to later.

In fig. 3 is represented a type of chipped

stone implements occasionally encountered in this general region. Although the Museum expedition recovered but one specimen of this class, seven others are illustrated in an article by H. Newell Wardle (1913), in which the author states that the objects "show amid their variation a strong family likeness, peculiarity and specialization of



FIG. 3.—"Scarifier" of flint. (Length, $2\frac{3}{4}$ in.)

outline, for which it would be difficult to suggest other than surgical uses." It should be explained that the author here uses the term surgical "in its broader sense to cover any operation of a cutting implement upon living tissue." Miss Wardle adds that "ceremonial scarifying was a common practice among the California tribes."



CHALCEDONY POINT SHOWING DELICATE CHIPPING
(Height, $1\frac{3}{8}$ in.)

ABRADING TOOLS

Native sandstone was used to a large extent for grinding shell as well as for sharpening bone awls and other implements. A piece of such a stone variously scored by grinding is shown in fig. 4. It would seem



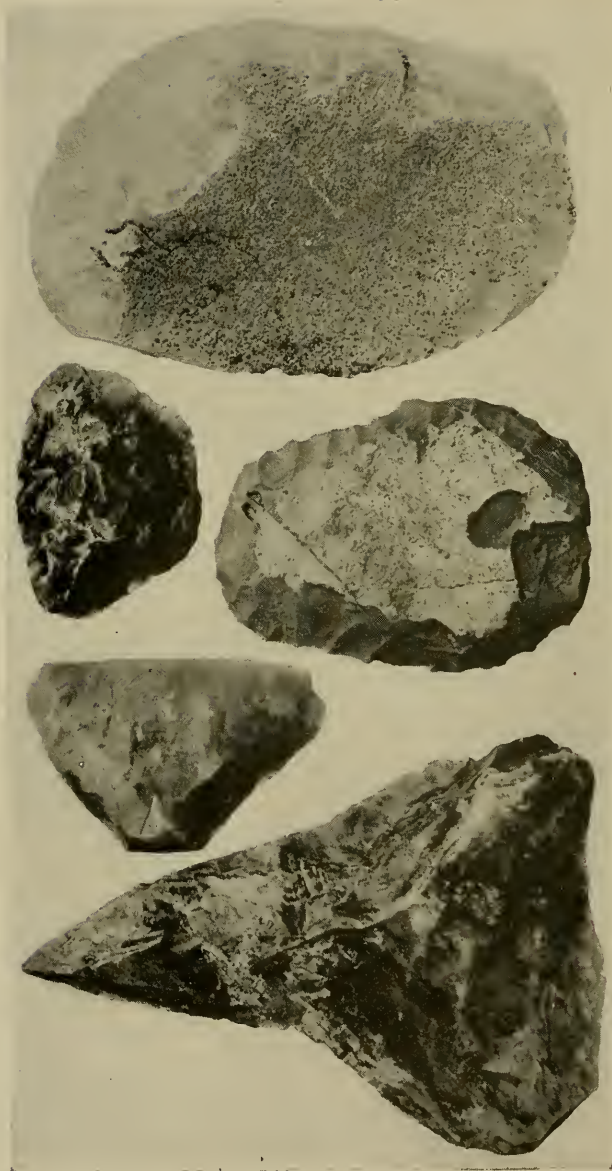
FIG. 4.—Grinder of sandstone. (Diameter, $8\frac{1}{2}$ in.)

that the coarse nature of this brownish-yellow sandstone made it very suitable also for shaping shell disc-beads after they had been perforated and strung.

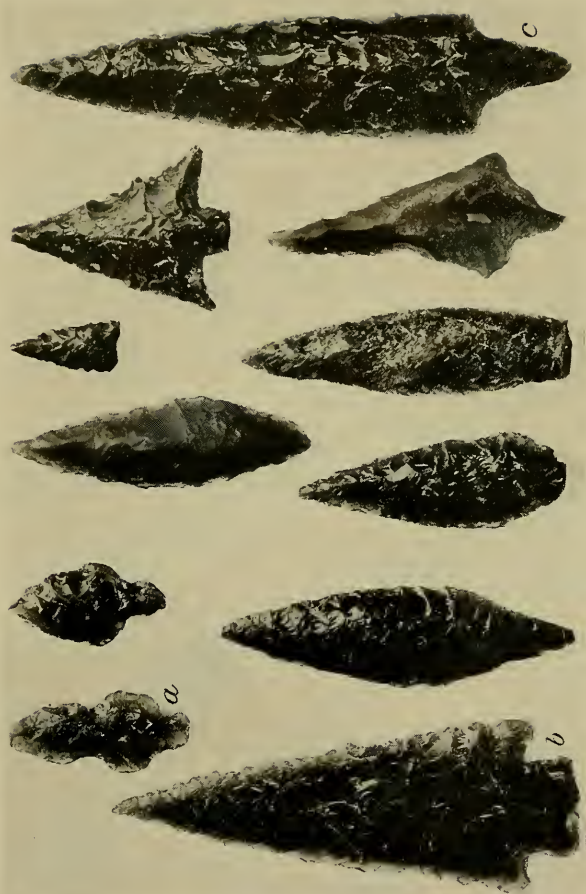
74	SAN MIGUEL ISLAND
	BONE OBJECTS The bone implements and ornaments of San Miguel island are very numerous, and most of them are well made. Bones of the sea-lion, deer, and whale, and of fish and birds of many kinds, were utilized, and some ornaments were made even from human bones. WHALE-BONES AS GRAVE MARKERS Regarding the occurrence of whale-bones in association with human burials, Schumacher (1877, pp. 38-39) states, "The skeletons were found from three to six feet underground, and often from three to four resting one above the other, separated, if at all, by the bones of the whale." Again, "To find a skeleton at the bottom of a pit, at the depth of about five or six feet, especially if there be none above it, is considered by the practical digger a lucky hit, and causes him to work carefully in the removal of the slabs and whale-bones." To this day many vertebræ of whales are found to mark the position of burials. Ow-
VII	INDIAN NOTES



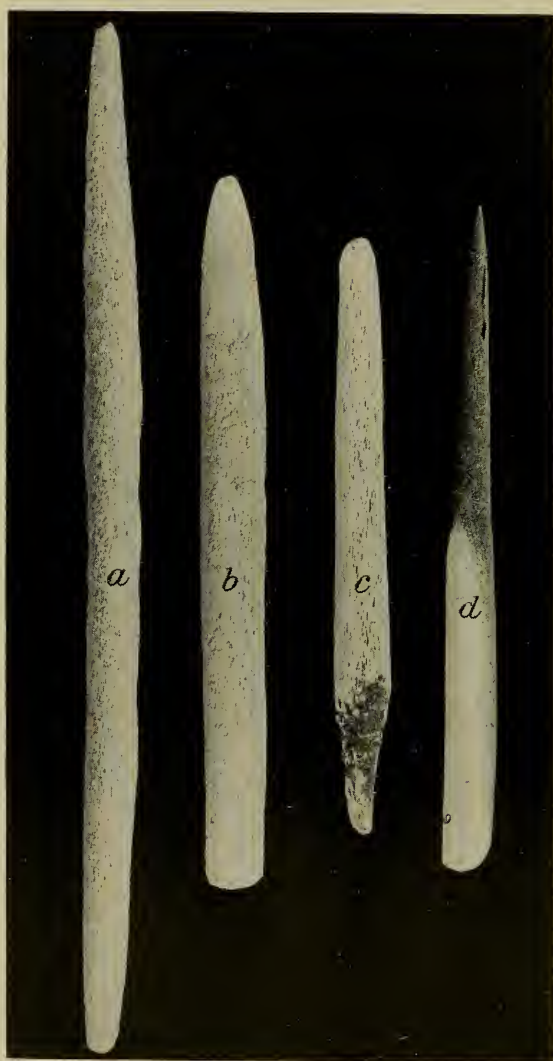
REAMER AND PERFORATORS OF STONE
(The first specimen, a reamer, is $2\frac{1}{2}$ in. long)



SCRAPERS OF STONE
(Height of the first specimen, $2\frac{3}{8}$ in.)



CHIPPED OBSIDIAN IMPLEMENTS
(Length of *c*, $4\frac{1}{2}$ in.)



BONE POINTS FOR ARROWS OR SPEARS
(Length of *a*, $8\frac{7}{8}$ in.)

ing to the drifting of the sand, which is violent at times, many of these bones are covered to a great depth, while others have



FIG 5.—Whale vertebra used for lining graves.
(Extreme diameter, $13\frac{1}{2}$ in.)

been displaced. No whale-bones that had been used as lining for the graves were found, although small ones, such as the vertebra shown in fig. 5, might well have been

employed for such purpose, as the greatest thickness of the typical one illustrated is only two inches. The larger kind, found usually as markers, are represented by the one exhibited in fig. 6. These bones show



FIG. 6.—Whale vertebra used as a grave marker.
(Length, 34 in.)

no evidence of having been worked. In some cases they were found as much as three feet above the skeleton whose burial they marked.

WHALE-BONE MORTAR

Owing to their great size and strength, bones of the whale were used in many ways

for tools of varying shapes and sizes. It is difficult to imagine, however, why so much labor should have been expended on the central part of a whale's vertebra in

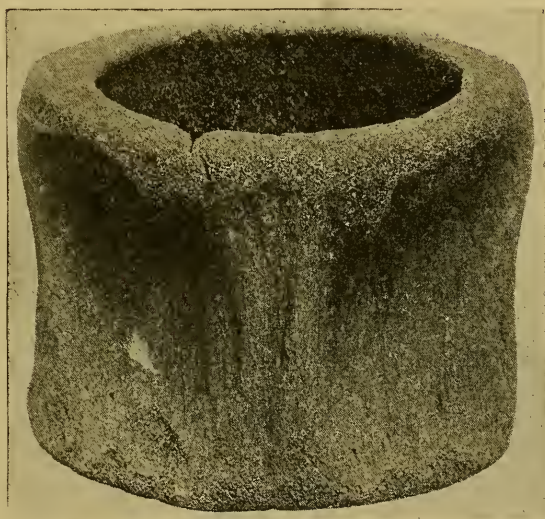


FIG. 7.—Mortar of a whale vertebra.
(Diameter at base, $10\frac{1}{2}$ in.)

order to produce a mortar such as is shown in fig. 7. The inside of this specimen has been worked out, with a rounded base, until the wall of the receptacle is only $1\frac{3}{4}$ in. in

78	SAN MIGUEL ISLAND
	thickness. The projections of the vertebra were removed by grinding, as no sign of cutting is shown. VARIOUS OBJECTS Figs. 8 and 9 represent two bone implements from San Miguel that resemble those made by Indians of the vicinity of Puget sound and Vancouver island. The former is fashioned from whale-bone, grooved around a short upper projection. Although generally resembling in form the bark-shredder of Vancouver island, and even the woman's knife of the Eskimo, it is possible that this implement had been hafted by means of the projection and used as a knife. The other object (fig. 9) is a handle made from the radius of the elephant seal, <i>Mirounga angustirostris</i> Gill; it is of the same type as the wooden ones of the Puget Sound region and those of bone from the Eskimo which are used for adzes or picks. Cylindrical whale-bone objects, more or less pointed, are reproduced in pl. XLVI, of which <i>d</i> is of the very pointed type that may
VII	INDIAN NOTES

have been used either as an awl or as a point for a small spear. Specimens *a-c*, more rounded at the end, might well have served as foreshafts for spears or for similar weapons, or even as spearpoints.



FIG. 8.—Knife made of whale-bone.

The one lettered *c* still has asphaltum adhering to it, showing that it has been inserted in a socket.

Implements of whale-bone that may have been used in skin-dressing and in many

other ways are illustrated in pl. XLVII. Many, such as *b*, are heavy and strong enough for use as clubs with which to kill fish and even seals. These objects are all flat on one side, and the edges as well as both ends have been carefully rounded, but none of them shows an edge that is sharp enough for cutting purposes.

Chisel-like bone tools are represented in

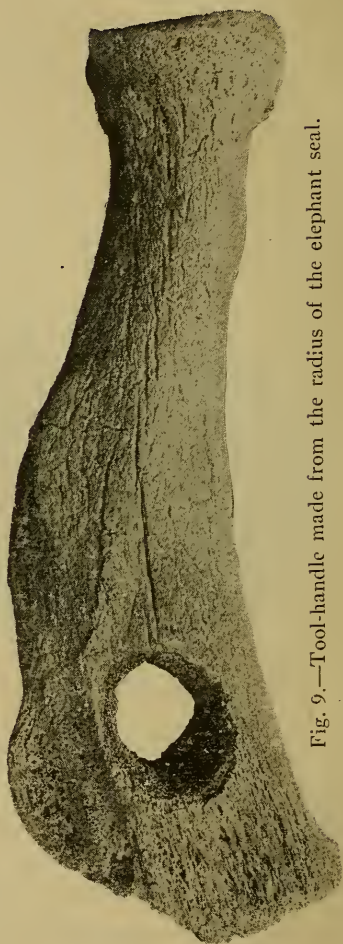
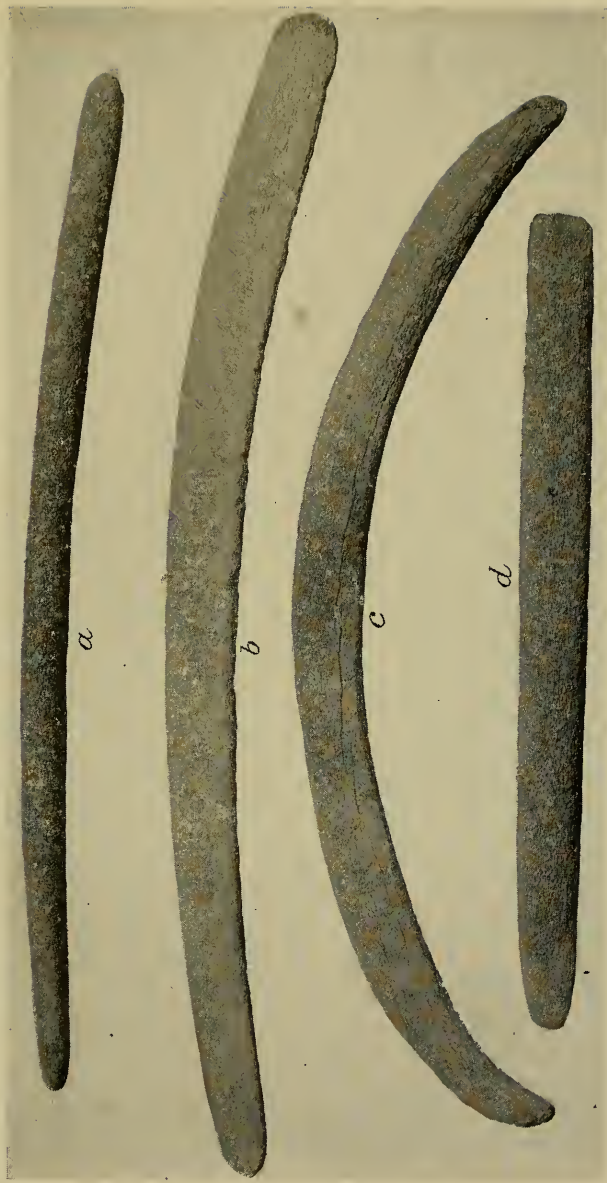
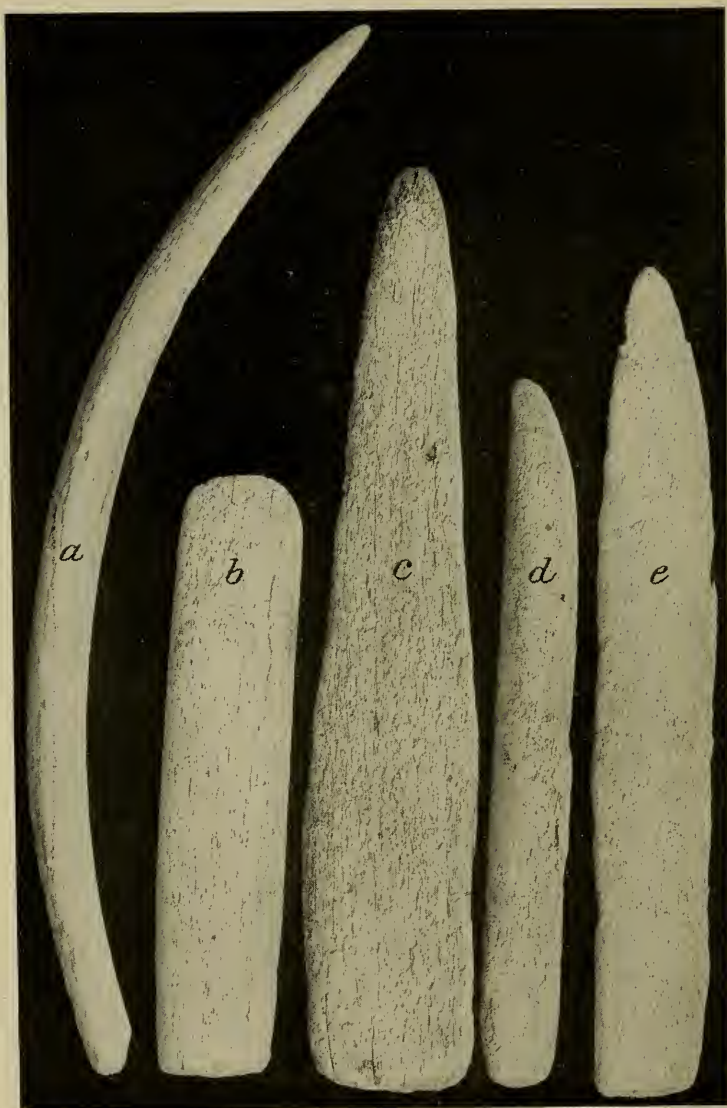


Fig. 9.—Tool-handle made from the radius of the elephant seal.



OBJECTS OF WHALE-BONE
(Length of *b*, $20\frac{5}{8}$ in.)



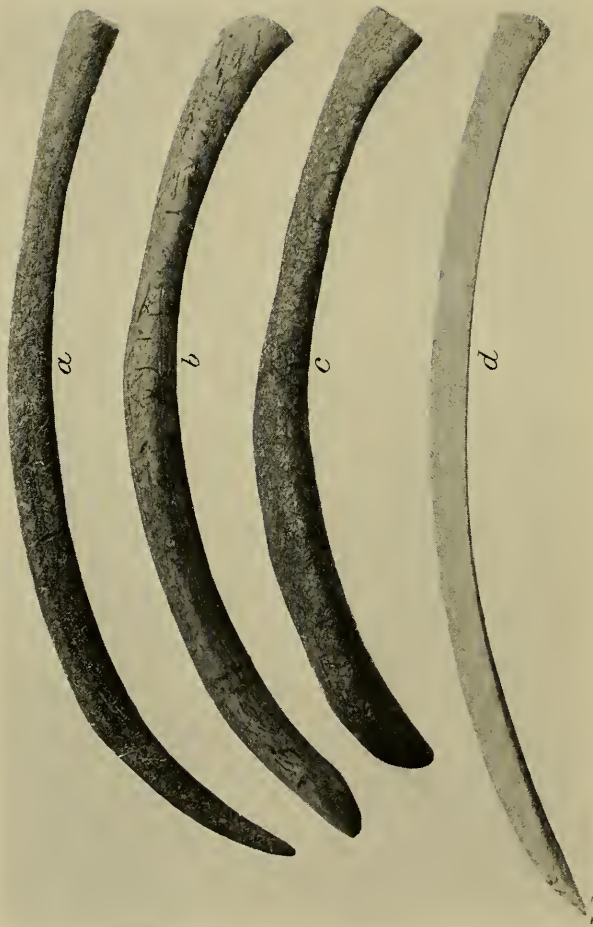
BONE CHISELS AND REAMER
(Length of *a*, 11 in.)

WHALE-BONE IMPLEMENTS	81
pl. XLVIII, <i>b-e</i>. In these the pointed end has a cutting edge, while the other end is only roughly cut. The implement shown in <i>e</i> exhibits use as a reamer, as will be seen by the notches near the pointed end. The flat curved specimen (<i>a</i>), made from the rib of a cetacean, is fairly sharp, but is not fashioned in a chisel-like way. Other curved implements are shown in pl. XLIX, made from bones other than those of the whale, but it has been found impossible to identify them. In each instance both ends have been worked, some to a point, others in a rounded manner. These tools, which show superior workmanship and finish, might have been used for weaving or plating sea-grass into garments or mats, or possibly for the shanks of fishhooks—a use that will be discussed later. Still other curved bone implements are exhibited in pl. L, all made from the ribs of deer or sea-lion. The butt end has been left in its natural state, while the other end, in the examples shown in <i>a</i> and <i>d</i>, is ground to a point. The smaller ends of <i>b</i> and <i>c</i>, although blunt, likewise show evidence of	
AND MONOGRAPHS	4

82	SAN MIGUEL ISLAND
	working. These latter two objects would have made ideal tools for chipping stone, the natural curve of the rib fitting the hand in such a way as to afford a firm grip. That many of the bone tools were fitted to handles or to other objects is proved by the specimens with asphaltum still remaining on them (pl. LI), which bears the marks of cord-wrapping. In the case of <i>a</i>, the impression of the wrapping does not show on the asphaltum itself, but on the implement above the place where it occurs. Figure <i>b</i> illustrates a curved bone blade, with a rounded end, set in a socket or handle of asphaltum. A hole in this socket indicates that a similar bone point was originally placed there. A few cord-marks are still discernible on the surface, and the entire object suggests part of a bird spear similar to those used by the Eskimo. It is possible that this implement was utilized for some such purpose in conjunction with a bone socket. The implement illustrated in <i>c</i> was likewise provided with a handle, as shown by the cord-marks, and when so mounted it was used for chipping stone, the
VII	INDIAN NOTES



CURVED BONE IMPLEMENTS
(The longest is $8\frac{1}{4}$ in.)



CURVED BONE IMPLEMENTS
(Length of *d*, 6¼ in.)

well-worn end being characteristic of flaking tools.

FISHHOOKS

In a brief article Bowers (1883) says:

"The true fish-hook of what may be termed the Santa Barbara Indians has never, to my knowledge, been figured. . . . These hooks were made of two slightly curved pieces of bone pointed at each end, and firmly tied together at the lower end and cemented with asphaltum."

The accompanying sketches (fig. 10) from Bowers' article are illumining as regards the bi-pointed, well-finished bone implements shown in pl. LII. No specimen of this type found by the expedition on San Miguel island gives any indication of having been wrapped with cord, although similar implements in the Museum's collections from other California islands bear such evidence. These pointed bones, in connection with the curved ones shown in pls. XLIX and L, would make fishhooks similar to those figured by Bowers.

Other curved bone objects, well pointed at one end, are illustrated in pl. LIII. All

the blunt ends show evidence of having been mounted with the usual asphaltum,

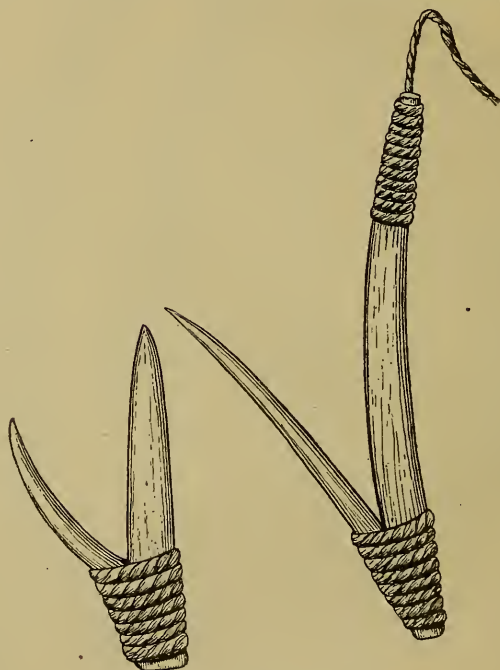
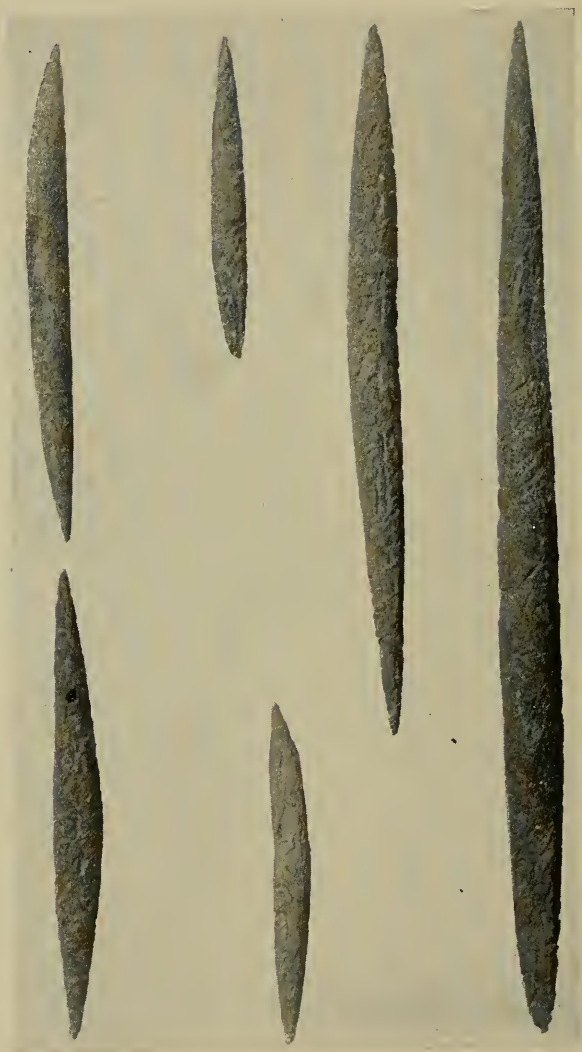


FIG. 10.—Bone fishhooks.
(After Bowers.)

and were used, like those shown in pl. LII, as fishhooks. The smallest of the points shown in pl. LIII, however, is of a different



BONE ARTIFACTS WITH ASPHALTUM MOUNTINGS
(Length of *b*, $3\frac{3}{8}$ in.)



BI-POINTED BONE IMPLEMENTS
(The longest is $3\frac{3}{8}$ in. in length)

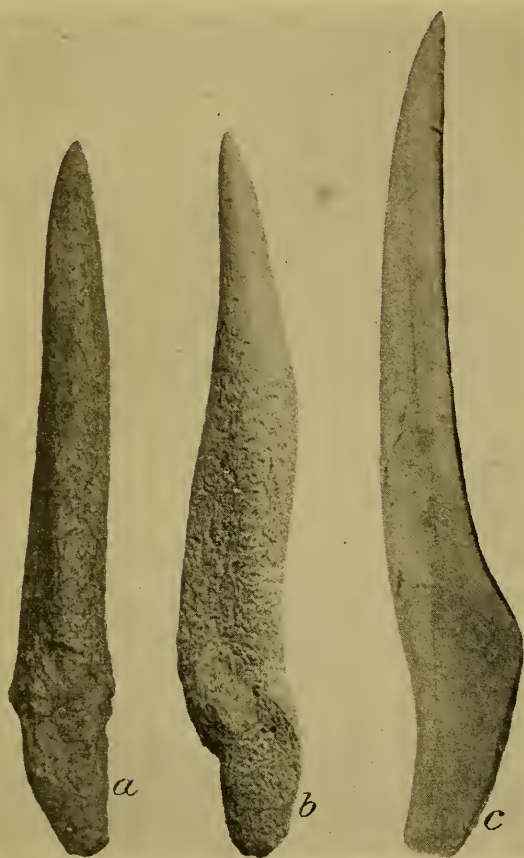
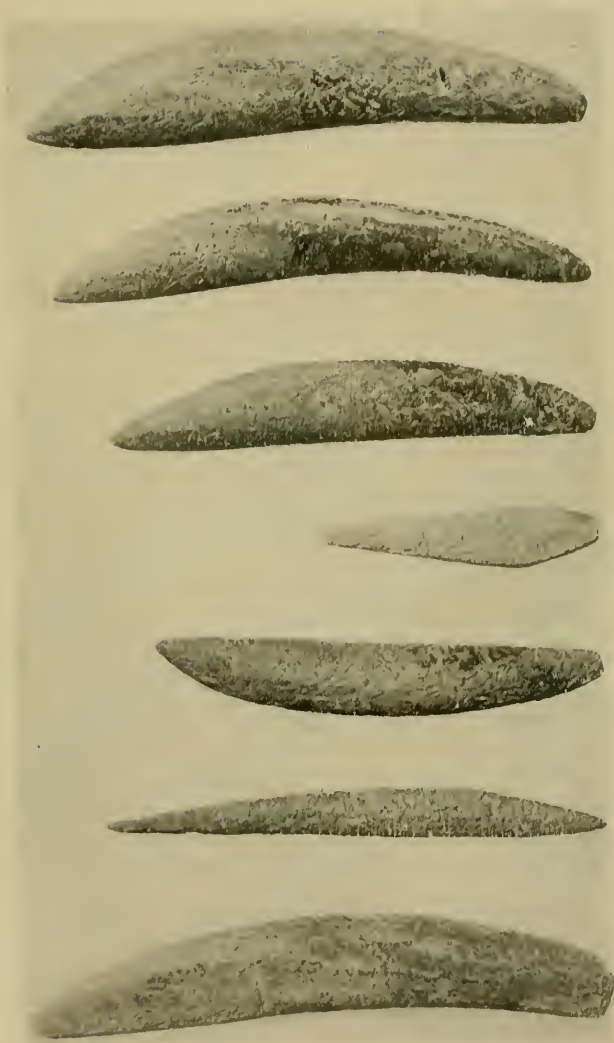
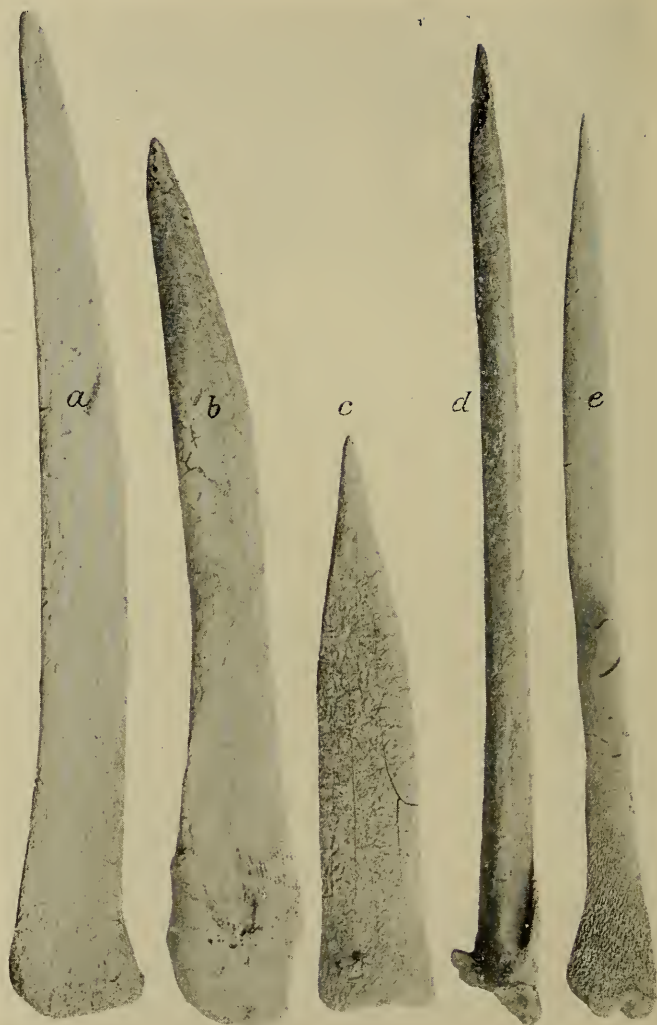


FIG. 11.—Bone fishhook barbs.
(Length of *c*, $3\frac{5}{8}$ in.)

86	SAN MIGUEL ISLAND
	type, as it is flattened on both sides and ground straight on one edge near the blunt end. It likewise is the barb of a fishhook that was originally mounted with a bone shank. Other and larger bone objects (fig. 11) that had been used in a similar manner were occasionally met. Two of these (<i>a</i>, <i>b</i>) are pointed at one end only, the other end having been left in its natural state. The barb of specimen <i>c</i>, on the contrary, has been carefully finished throughout. BODKINS AND PUNCHES As deer were not known to San Miguel island, implements made from their bones are rather scarce, both the finished artifacts and the raw material from which they were manufactured having been obtained from the mainland. Of the bodkin, or punch, made from the ulna of the deer and found so commonly throughout the United States, only two examples were unearthed on San Miguel (fig. 12). The specimen shown in <i>a</i> is covered with a thin layer of asphaltum, suggesting that, in addition to its custom-
VII	INDIAN NOTES



BARBS OF BONE
(The last specimen is $2\frac{1}{16}$ in. long.)



BONE AWLS
(Length of *a*, $5\frac{7}{8}$ in.)

ary use, it may have been used for stirring melted asphaltum or for applying it to objects. The other specimen (*b*), on the con-

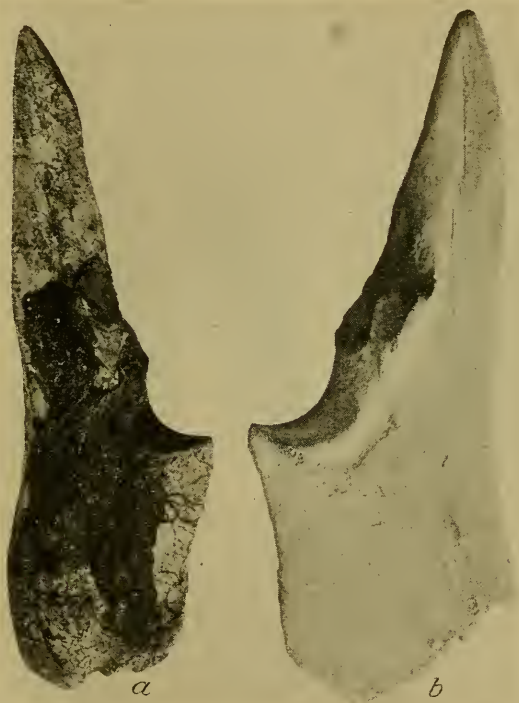


FIG. 12.—Bodkins or punches made from ulnæ of deer.
(Length of *b*, $4\frac{3}{4}$ in.)

trary, shows no evidence of the application of asphaltum, and it has a well-worn point such as is common to implements of this character.

ARROWPOINTS

Bone arrowpoints were used by the Channel islanders. In the Museum's collection

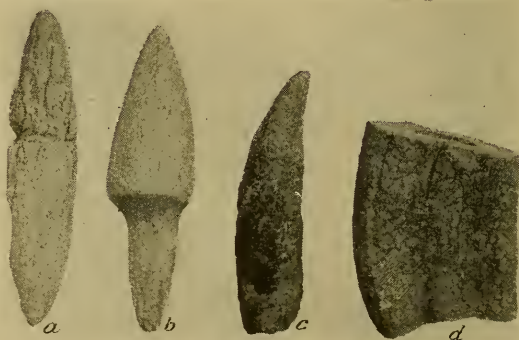


FIG. 13.— Bone arrowpoints (*a, b*), and worked teeth (*c, d*).
(Length of *a*, $1\frac{3}{16}$ in.)

is one found on Santa Catalina island, which has penetrated a human sternum; this, however, is of the slender type, of which none was found on San Miguel, the only two recovered being of the blunt kind, generally used for stunning birds (fig. 13, *a, b*).

PENDANTS	89
These differ in form, one having a groove as the means of attachment to the shaft, the other being cut away at the base to afford a firm hold for the seizing. PENDANTS Bones in the form of pendants and pins were used for personal adornment (Costansó, 1769, (4) p. 45), and animal-teeth and bird-claws were similarly worn. In fig. 13, <i>c</i>, is shown a canine tooth of the sea-lion (<i>Zalophus californianus</i>) perforated for suspension, while a similar one (fig. 14, <i>a</i>) has been used as a pendant by the common method of wrapping the end with a cord attached with asphaltum. Near the pointed end of the latter tooth may be seen a small oval that has been cut through the enamel to receive an inlay, as shown by the asphaltum still adhering to the depression, probably of haliotis shell. The base of a canine tooth of the elephant seal (fig. 13, <i>d</i>), with the top cut off, suggests that the use of teeth for other than ornamental purposes was not unknown to the San Miguel people. Illustrated in fig. 14, <i>b</i>, is an eagle-claw, per-	
AND MONOGRAPHS	4

forated for suspension, the drilled end being coated with asphaltum; but it shows neither cord-marks nor depressions where inlays

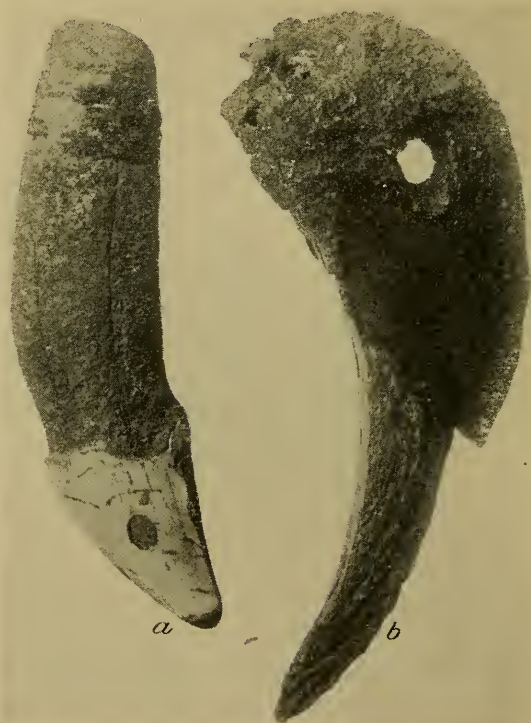
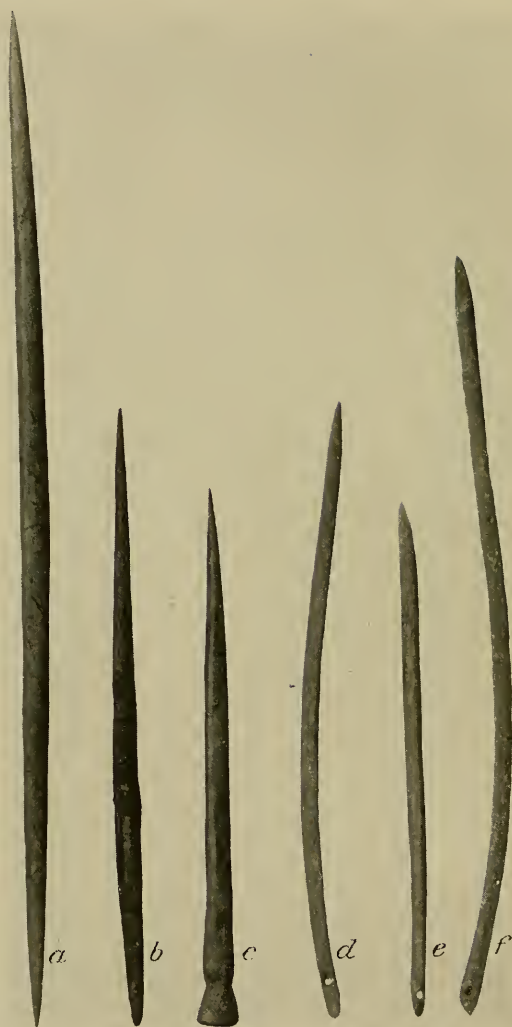


FIG. 14.—Sea-lion tooth (*a*) and eagle-claw (*b*) used as pendants. (Length of *b*, $1\frac{1}{2}$ in.)



BONE AWLS AND HAIRPINS
(Length of *a*, $6\frac{3}{4}$ in.)



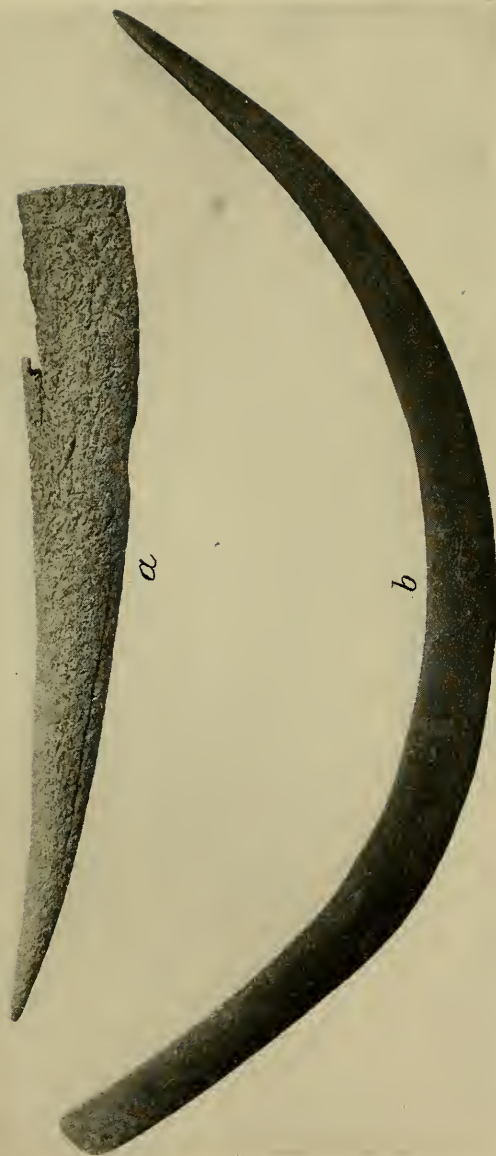
BONE PINS AND NEEDLES
(Length of *a*, 7 ³/₈ in.)

might have been set. A necklace consisting of fourteen eagle-claws, similarly mounted, was found in a grave, but no others were recovered.

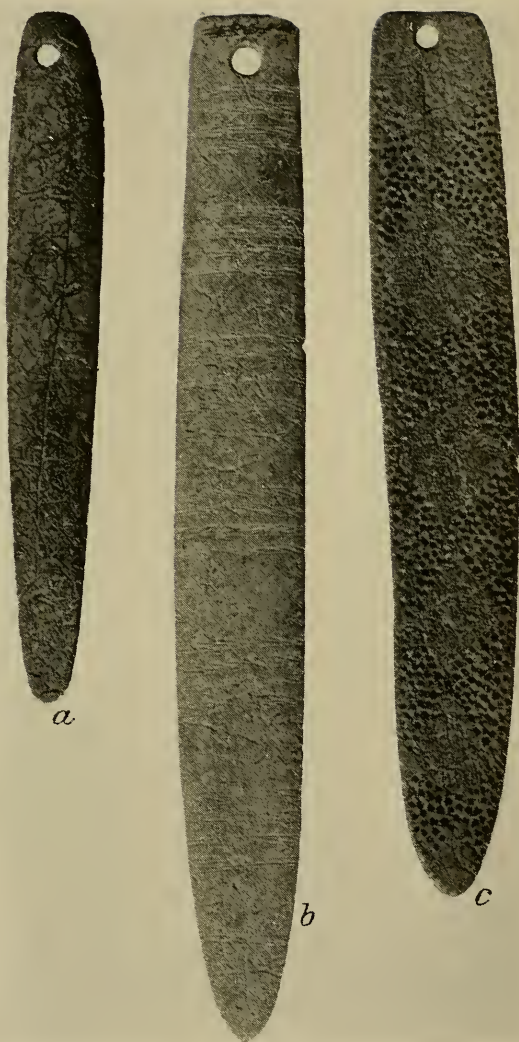
AWLS AND PINS

A great many awls were found, most of which are made from bird-bones (pl. LIV, *d, e*), while others are from the bones of deer and sea-lion (*a-c*). Not much care was taken in fashioning the bird-bone awls, but many examples of those manufactured from the bones of other animals are worked and finished throughout, such as those shown in pl. LIV, *c*, and LV, *c, d*, the latter two being highly polished from use. The deer-bone awl of the slender, pin type, which may have been used as a hair-ornament, is illustrated in pl. LV, *a*. Specimens *b*, of deer-bone, and *e* and *f*, of bird-bone, are fashioned in such manner that the enlarged articular end served as the head of the object when used as a pin or as a hair-ornament. Used for the latter purpose, they could have been decorated with shell rings or other objects in

92	SAN MIGUEL ISLAND
	such a way that the ornaments would not drop off while the pins were in use. Other and smaller pins of animal bone are illustrated in pl. LVI. Of these, <i>a</i> is a slender one, pointed at both ends, finely finished throughout; the upper end shown in the illustration is highly polished from use. A smaller one of the same type (<i>b</i>) is covered more than half its length with cord-marked asphaltum, and its more pointed end is likewise polished from use. This pin, when decorated, might well have been used as a hair-ornament; and the larger specimen (<i>a</i>) could have been decorated and used in the same manner. Another form of bone pin (<i>c</i>) is finely polished, and could well have been utilized in a practical way for holding skin garments together. The encircling groove near its head would have enabled its owner to tie it to the garment or to another object to prevent loss. NEEDLES Bone needles of two types, the curved (pl. LVI, <i>d</i>, <i>f</i>) and the straight (<i>e</i>), were fre-
VII	INDIAN NOTES



POINTED HORN AND CURVED BONE HAIRPIN
(Length of *b*, following its curve, is $11\frac{3}{4}$ in.)



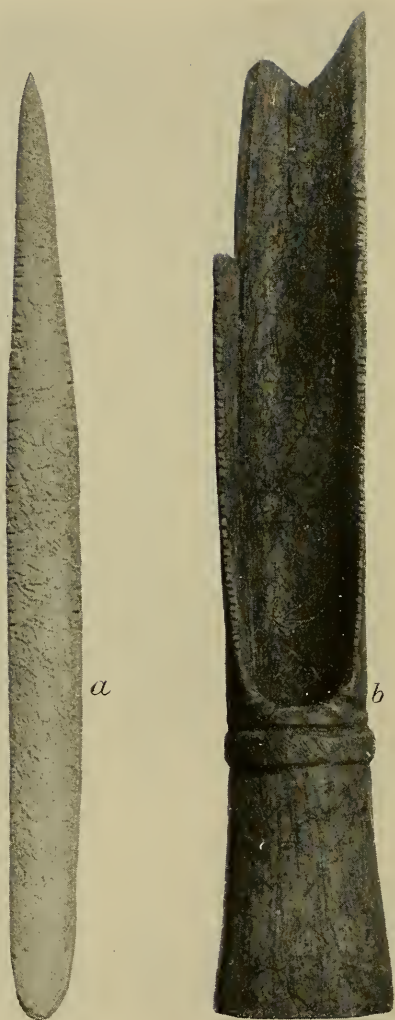
DECORATED HAIR-ORNAMENTS OF BONE
(Length of *b*, 6 in.)

NEEDLES - WAND	93
quently encountered. Most of these are curved, and all are flattened on two sides, not a single cylindrical example having been recovered. Both ends are ground, and the eye-end is flattened to a wedge shape. The perforation of the needles is more or less reamed or countersunk on both sides to prevent wearing of the thread. WAND OR STAFF An interesting specimen is illustrated in pl. LIX, <i>c</i>. This bone, probably that of a deer, has been worked to a thin end, which is perforated, although only half the drilling remains. The bone has been entirely covered with asphaltum, which fills the under hollow side completely. The outer surface was wholly incrustated with small, perforated, olivella shell disc-beads, the apertures allowing the asphaltum to maintain a firmer grip upon the discs than if the smooth, highly-polished, inner surface of the shell alone had been used. The larger end has not been cut or finished in any way, but like the rest of the object it is covered with asphaltum. When found, this	
AND MONOGRAPHS	4

94	SAN MIGUEL ISLAND
	specimen was in the left hand of the skeleton of a person who in life had doubtless been an important member of his tribe (see page 39), and the object was probably a wand or staff of office, such as similar objects of wood, inlaid with metal, used by certain caciques in Bolivia to this day. HAIR-ORNAMENTS A finely finished object made from a deer-rib and probably used as a hair-pin is illustrated in pl. LVII, <i>b</i>. It has been carefully worked down to a thinness not seen in any other pin-like implement from San Miguel. At its thickest point, which is at the blunt end, it measures only three-sixteenths of an inch. Its maximum width is eleven-sixteenths of an inch. The pointed end of the implement is polished for only a short distance. A deer antler (<i>a</i>) that bears evidence of having been worked only at its wide end, which is ground flat, might have been used either as a tool-handle or, set with a crystal or other object similar to the specimen shown in pl. LIX, <i>a</i>, as an ornament.
VII	INDIAN NOTES



BONE HAIR-ORNAMENTS AND INLAID WAND
(Length of *c*, $11\frac{3}{8}$ in.)

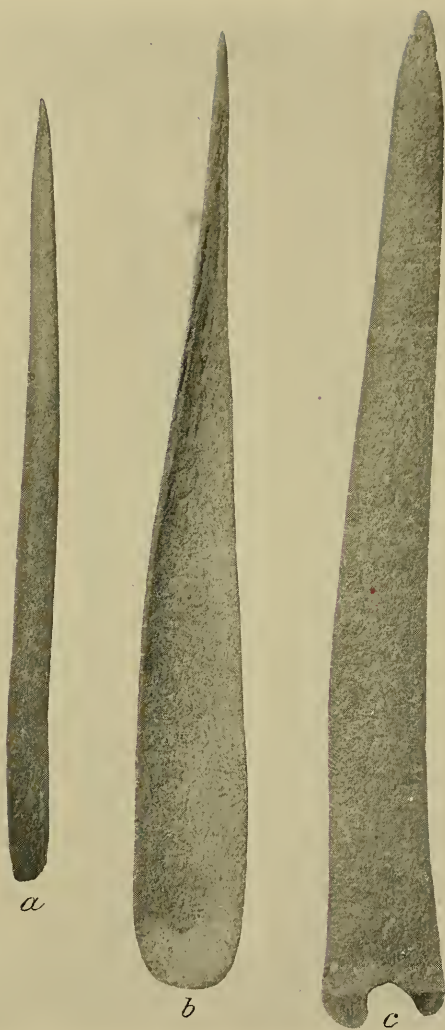


BONE OBJECTS, PROBABLY HAIR-ORNAMENTS
(Length of *b*, $5\frac{5}{8}$ in.)

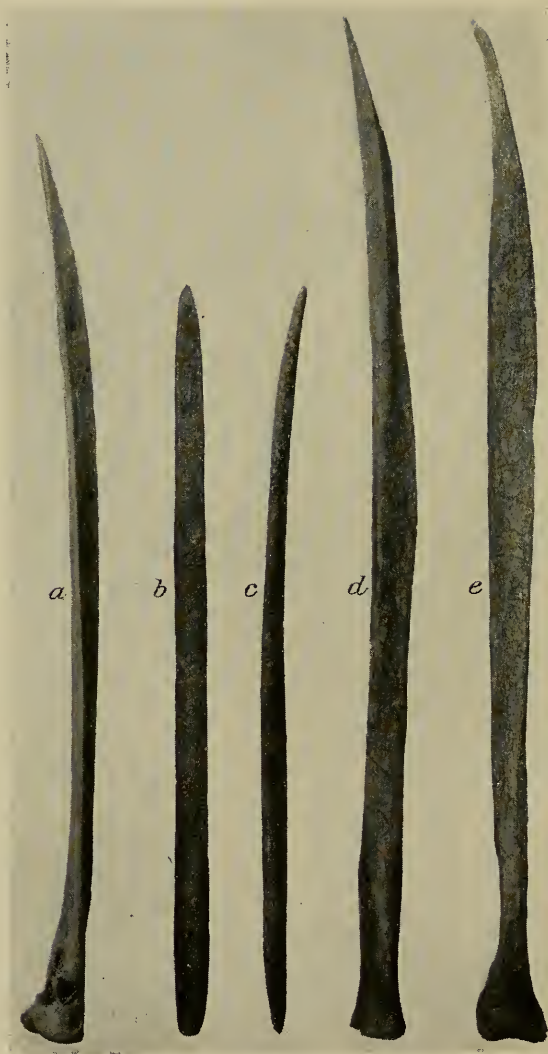
In pl. LVIII are seen three bone objects of similar shape that probably were likewise used as hair-pins. Found in different graves, they were in each case near the back of a skeleton. Figure *a* of the plate has a well-finished surface with a single, long, incised line upon it. That this mark was not accidental is proved by the fact that, when magnified, several striæ are shown in the cutting. The next specimen (*b*) exhibits an attempt at much more elaborate decoration by incising. The transverse bands suggest the cord-marks so often seen when objects are coated with asphaltum, although in this particular instance the only trace of this substance is in the incised decoration above the perforation. The third pendant (*c*) shown in pl. LVIII exhibits a form of decoration consisting of dots, made with a small perforating tool, so arranged as to form triangles with their apices meeting at the center of the object and their bases resting on its edges. All three of the specimens here noted are ornamented on one side only.

A deer-bone pin, found with a similar one under a skull, is shown in pl. LIX, *a*. It is

96	SAN MIGUEL ISLAND
	well finished with a ridge around the top, made perhaps for the purpose of keeping in place some such ornament as the inlaid shells represented in pl. CXII. The end is filled with asphaltum, in which a rock crystal is inserted. The small bone pin presented in <i>b</i> of the same plate also was found under a skull. The original perforation having been broken out, a new one was drilled immediately beneath. Asphaltum still adheres to the part around the broken perforation, and there are incised notches on both edges near the same end. The fragment of a deer-bone hair-pin of the same type as that mentioned above (pl. LIX, <i>a</i>), but more elaborately carved, is shown in pl. LX, <i>b</i>. Instead of a ridge at the end to hold the shell ornament in place, the natural enlargement of the bone has been utilized for this purpose. Along the edges are notches to prevent the pin from slipping from the hair as easily as if the edges were smooth. This probably accounts for the similar incisions on the bone pin shown in <i>a</i> of the same plate, which also was found at the back of a skull. In
VII	INDIAN NOTES



BONE HAIR-ORNAMENTS
(Length of *c*, 14½ in.)



HAIRPINS OF HUMAN AND DEER BONE
(Length of *d*, $11\frac{1}{8}$ in.)

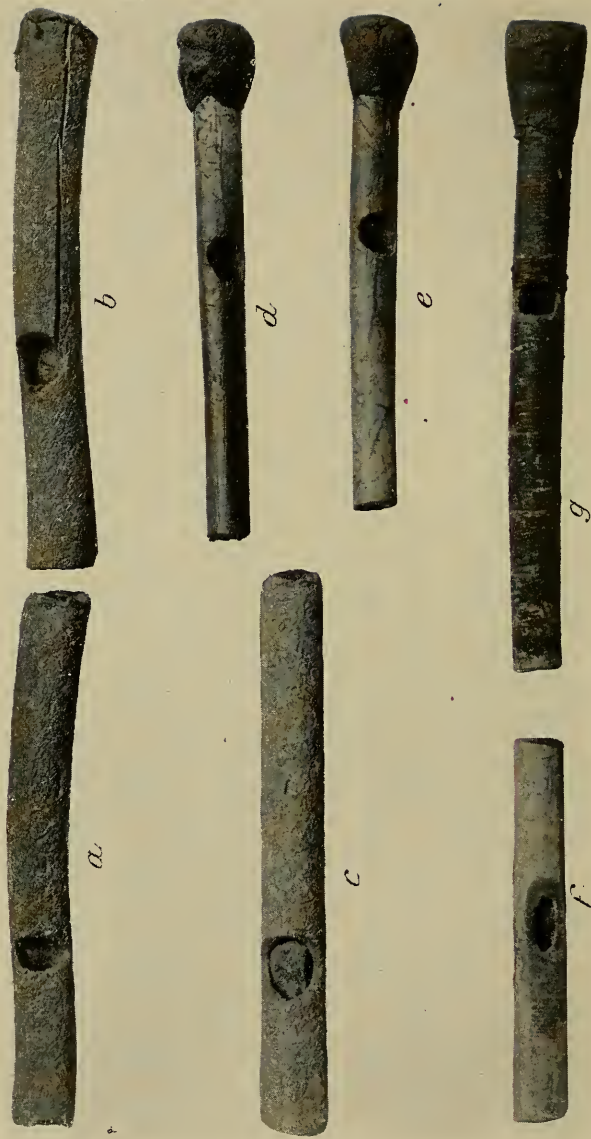
like position were found all of the bone pins illustrated in pl. LXI and LXII, hence these may reasonably be assumed to have been hair-ornaments. The three specimens shown in pl. LXI are made from fragments split from a rib of a cetacean; and in the cases of *a* and *b* are simply rounded off on the end opposite the point. In this respect *c* differs in that it has had a notch cut in its broader end, the adhering asphaltum indicating that it was ornamented at this point. All of these objects are very thin, the thickest part of any of them being near the notched end of *c*, which is only an eighth of an inch.

A bird-bone pin for the hair (pl. LXII, *a*) does not differ essentially from certain others above described, except that it has a rude perforation through its head, so that, if desired, an ornament could have been suspended. The remaining four specimens shown in this plate are all made from human fibulæ, and were found at the back of skulls, the two specimens *d* and *e* coming from the same grave. Both *b* and *c* are pointed at both ends and are well finished, while the pair *d* and *e* are pointed at one end only,

98	SAN MIGUEL ISLAND
	and to an extreme degree. Both of these have been slightly narrowed near the head, so that a shell or other ornament placed there would easily have retained its position. WHISTLES AND FLUTES A few whistles made from tibiae of deer (<i>Odocoileus hemionus californicus</i>) were found (pl. LXIII). In each case one end is in its natural state, while the opposite end is ground off. Plugs of asphaltum were placed in the vents, in order to make the note of the whistle shrill. The surface of all these instruments shows that asphaltum has been applied, particularly in the case of <i>b</i>, where the impression of cord-wrapping may be seen. The openings are of different shapes, depending on the size and form of the stone used for abrading that part of the surface of the whistle where the vent appears, which evidently was done by rubbing a gritty stone at a right angle with the length of the bone. Two of the whistles illustrated (<i>a</i>, <i>d</i>) have small orifices, while the other two (<i>b</i>, <i>c</i>) are rather large. Another type of whistle, or call, made
VII	INDIAN NOTES



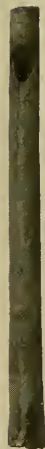
WHISTLES OF BONE
(Length of *d*, 10 $\frac{3}{8}$ in.)



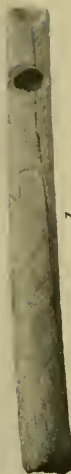
WHISTLES OF BONE
(Length of *g*, $3\frac{1}{8}$ in.)

WHISTLES-FLUTES	99
from bird-bones (pl. LXIV), may be divided into two classes: those having the end stopped with asphaltum (<i>a-c, f</i>), and those with asphaltum wrapped around the end (<i>d, e, g</i>). In the vents of these whistles a small lump of asphaltum has been placed, as shown plainly in <i>c</i>. The openings were made by abrasion in the manner above described, excepting in the case of <i>d</i> and <i>e</i>, which were probably first made by drilling and then were enlarged. Two whistles (<i>f, g</i>) show marks in the adhering asphaltum where they have been wrapped with cord, specimen <i>g</i> having been treated in this manner throughout its length. An attempt at ornamentation by means of a shell-disc inlay in asphaltum has been made on the butt of <i>e</i> and <i>f</i>, as shown both by the circular impression left therein and by the small, conical projection in the center that filled the perforation in what was undoubtedly a haliotis shell ornament similar to one of those illustrated in pl. LXXX. Two other small whistles (pl. LXV, <i>a, b</i>) differ from the above in so far as they have the vent close to one end. These probably have	
AND MONOGRAPHS	4

100	SAN MIGUEL ISLAND
	been made by refinishing fragments of broken bone flutes; in fact, the beginning of what had been another perforation may be seen at the right end of <i>b</i>. Both of these whistles are of the class that have the asphaltum plug on the inner side of the end. A flute (pl. LXV, <i>d</i>) made from a humerus of the brown pelican has six small drilled holes and a larger one, made by the usual rasping process. Within the bone at the latter opening is a plug of asphaltum similar to the plugs in the whistles, and the end is heavily overlaid with the same substance. A fragment of another form of flute, also of bird-bone, is shown in <i>c</i>, the end of which is naturally closed, making unnecessary the application of asphaltum. This instrument has been broken at the large opening, part of the edge of which remains. Besides the two small vents shown in the illustration, there are two similar ones on the under side, between, not opposite, the others. TUBES Many bone tubes of varying sizes and degrees of finish were recovered on San
VII	INDIAN NOTES



a



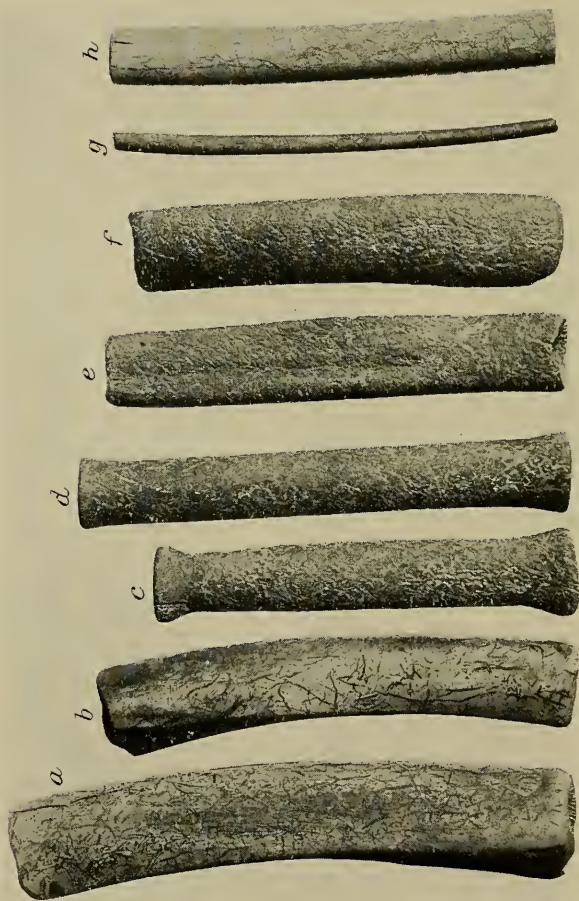
b



c



MUSICAL INSTRUMENTS OF BONE
(Length of *d*, 13 in.)



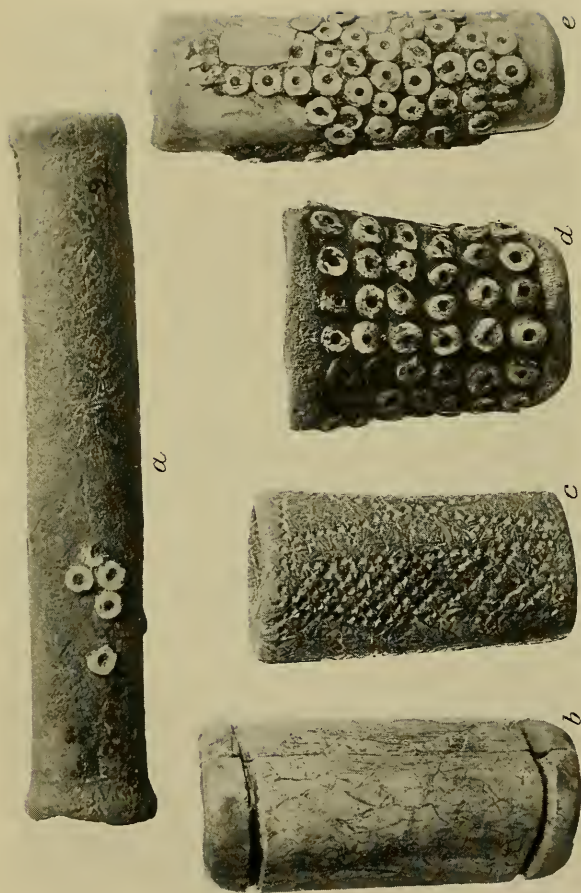
BONE TUBES
(Length of *a*, 5 $\frac{1}{8}$ in.)

Miguel. Some of these are shown in pl. LXVI. Two (*a*, *b*) are selected for illustration from fourteen found with one burial, all having been placed on the breast-bone of a skeleton, but it is impossible to say whether they were used as a necklace. The ends of these tubes, which conform in shape with the natural bone, are ground and polished, and in a few instances (*b*) the entire tube is similarly treated. Some tubes were ground on the ends and then worked over their entire surfaces, leaving ridges at the ends (*c*, *d*); they were probably made in this

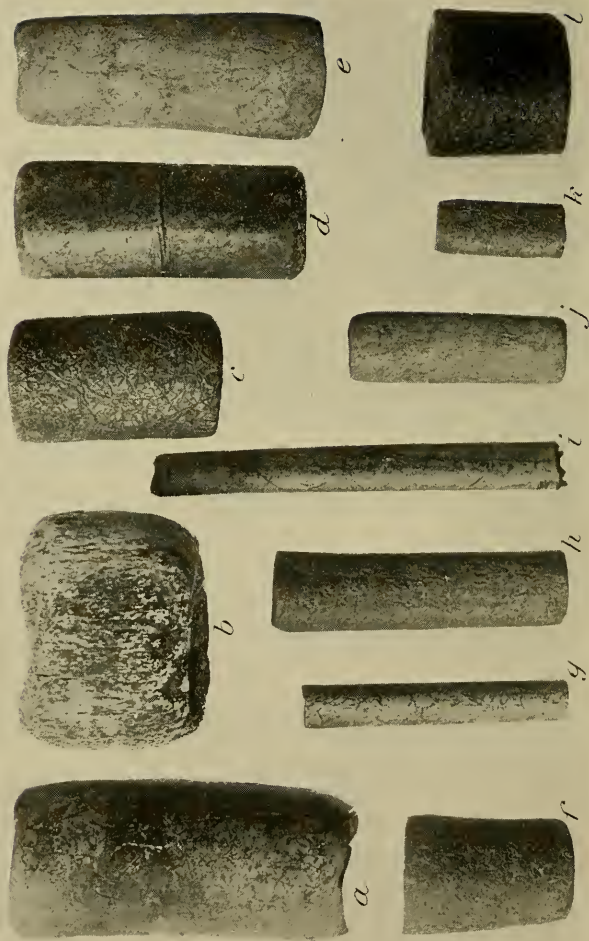


FIG. 15.—Box made from the humerus of a deer. (Height, $3\frac{1}{4}$ in.)

102	SAN MIGUEL ISLAND
	fashion so that, when covered with asphaltum and inlaid with shell discs, they would be cylindrical. That this form was not considered indispensable, however, is shown by two examples (<i>e</i>, <i>f</i>) that have been cut from a part of the bone having a flattened side. These tubes are all of deer-bone. Two others (<i>g</i>, <i>h</i>) show the range of size of the tubes made from bird-bone. The ends of the larger of these (<i>h</i>) have been carefully ground, a feature unusual in the bird-bone tubes, most of the ends being left unfinished after cutting (pl. LXVIII, <i>i</i>). Tubes similar to that shown in pl. LXVI, <i>h</i>, were used as mouth-pieces for tubular stone pipes, and they also might well be unfinished whistles. A tubular box made from part of the humerus of a deer is illustrated in fig. 15. The bottom is formed by attaching a halotis shell disc to the bone with asphaltum, which overlays the edge of the shell, thus fastening it securely. A hole has been drilled near the open end for suspension of the object from a belt or a necklace. The
VII	INDIAN NOTES



DECORATED BONE TUBES
(Length of *a*, $4\frac{1}{8}$ in.)



BONE TUBES OR BEADS
(Length of *a*, $2\frac{1}{8}$ in.)

bone is highly polished, as if from much handling.

Pl. LXVII illustrates bone tubes decorated with shell inlays or by incising. The tube shown in *a* is similar in form to others already described (pl. LXVI, *c*, *d*), and still has some of the olivella disc-beads adhering to it by means of asphaltum, traces of which are found on other parts of the surface as well. Another tube (*e*) shows evidence of wear on both the inside and the outside surfaces at the ends, and is decorated not alone with the usual olivella discs, but also with a larger, more or less rectangular, inlay of haliotis. A similar object, though used for a different purpose, is likewise of bone, but instead of being rounded, it is oval in cross-section (*d*); it has the usual ornamentation of olivella discs; and on each side is a slit reaching about a third of the way down, so that a blade of stone could have been mounted in it. The decoration being of such a delicate nature would seem to preclude the use of this object as a handle for an ordinary tool, hence pos-

sibly it was used as a hilt for a pendant or other ornament.

A form of tube with a deep groove cut around it at each end (pl. LXVII, *b*) was not common, six being recovered in all. The one illustrated shows use both inside

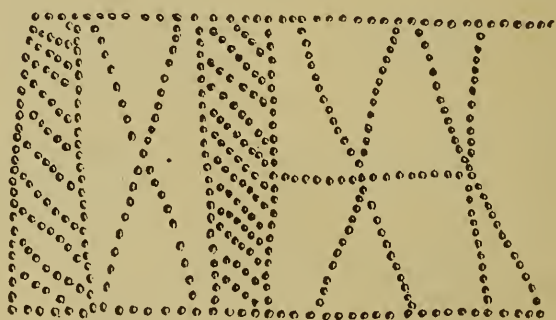


FIG. 16.—Dotted decoration on a bone tube.

and outside, the inside being similar to that of the specimen next to be described. The ends are finely rounded and finished, and there is no trace of asphaltum on the surface or in the grooves, either of this or of the five similar tubes.

A tube exhibiting a more ambitious attempt at decoration is the only one of its

kind found (*c*). The design, composed of a series of small dots cut in the bone with a sharp point, covers the entire surface, but it is not symmetrical, as fig. 16 shows. The interior of this tube, like the one last de-

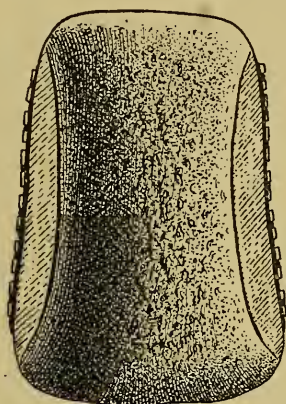
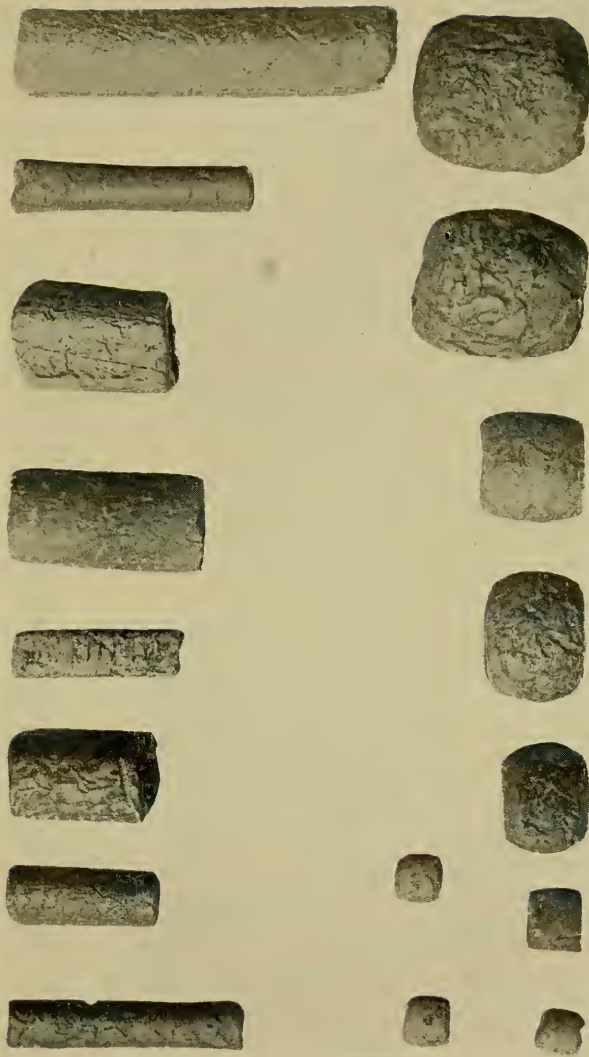


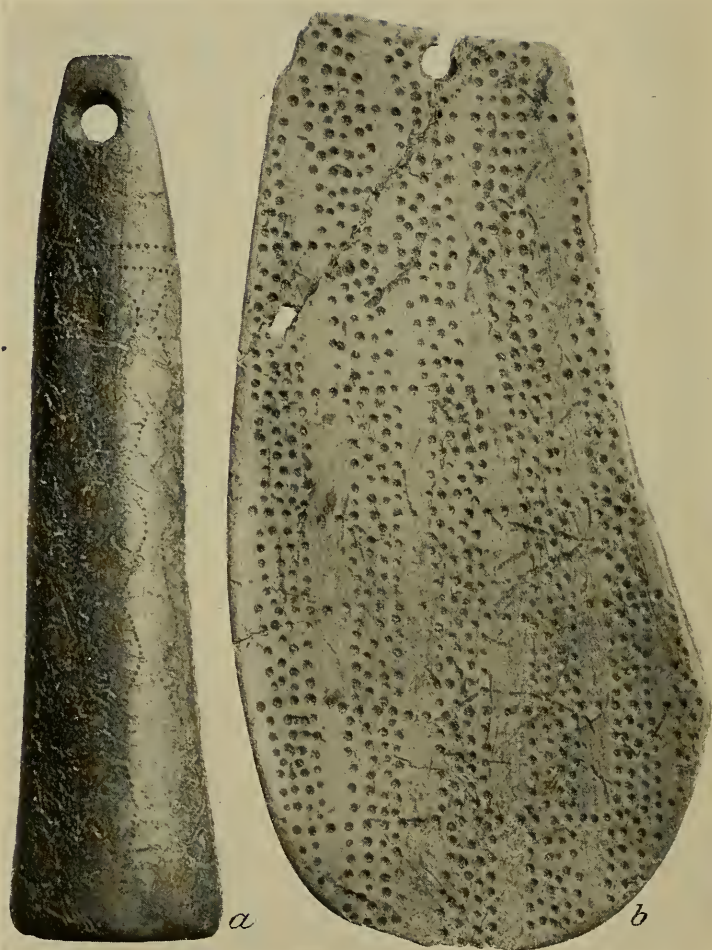
FIG. 17.—Section of bone tube.

scribed, shows evidence of working and usage; it has been hollowed or reamed out to a sharp edge (fig. 17), which shows a polish as if from much use. All of the specimens shown in pl. LXVII are of deer-bone.

106	SAN MIGUEL ISLAND
	BEADS The many bone beads found on San Miguel are of various sizes. Those figured in pl. LXVIII are of deer-bone, with the exception of <i>b</i>, which is of sea-lion bone, and shows a rude attempt at smoothing the ends after the cutting process had been completed. Four of the beads (<i>a</i>, <i>d-f</i>), besides being finely finished at the rims, are also reamed out on the inside from both ends in a manner similar to the decorated bone tube described on page 105. One of them (<i>d</i>) shows a slight groove rudely cut around the center. The beads shown in <i>c</i>, <i>g</i>, <i>h</i>, <i>j-l</i> are ground on the ends and carefully finished on their edges, but they show no evidence of interior working. The long bead (<i>i</i>) has been partly cut at the ends, then broken off, and probably was never finished. The bird-bone beads from San Miguel that show working in addition to mere cutting may be divided into two classes. Those similar to the lower nine figured in pl. LXIX, besides being ground smooth at the ends, are rounded on the outer edges, giving
VII	INDIAN NOTES



BEADS OF BIRD-BONE
(The longest is 1 in. in length)



ORNAMENTED BONE PENDANTS
(Height of *b*, $3\frac{5}{8}$ in.)

them more or less of a barrel form. Those of the other class, examples of which are illustrated in the upper eight figures of the plate, are ground squarely at the ends.

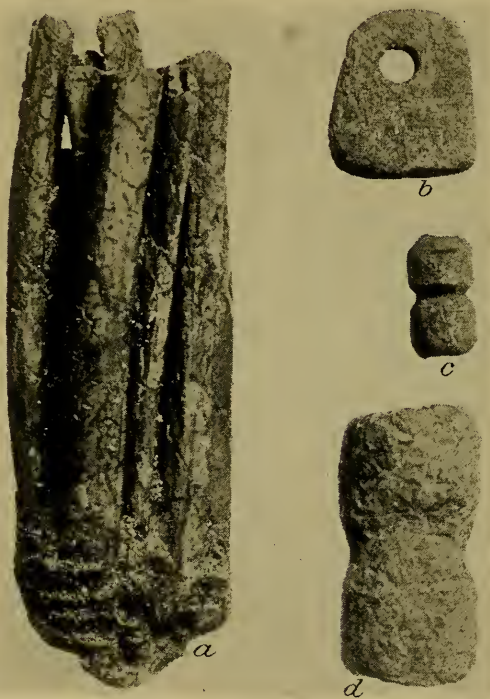


FIG. 18.—Bone pendants and beads.
(Length of *a*, $2\frac{1}{4}$ in.)

108	SAN MIGUEL ISLAND
	Two bone beads (fig. 18, <i>c</i>, <i>d</i>) with central grooves are similar in form to certain beads of stone already described (pl. xxx). These are finished ornaments, not beads in course of manufacture, as might be supposed from the crude grooving. The ends are ground and rounded, and both specimens present evidence of use by their polish on the inside and at the ends. PENDANTS A curious object (fig. 18, <i>a</i>) is composed of a cluster of nine tubular bird-bone beads held together at one end with asphaltum. The free ends of all the bones have been finished by grinding, and the three that show through the binding on the other end have been worked in the same manner. As the asphaltum bears marks of cord-wrapping, the object was probably a pendant. Bone pendants from San Miguel are rare, only three having been recovered. One (fig. 18, <i>b</i>) is very crude, being a small fragment of bone roughly ground on the edges, with a disproportionately large and crude perforation. The other two (pl. lxx)
VII	INDIAN NOTES

P E N D A N T S	109
are much more elaborate, both being ornamented with series of incised dots. One (<i>a</i>) is made from part of the humerus of a deer; it is well finished, both ends are carefully ground, and a hole for suspension has been made, from the outside only, near the smaller end. The decoration consists of a series of tiny incised dots arranged in two bands across the pendant beneath the perforation, from the lowermost of which extend four zigzag bands to the base. The other pendant (<i>b</i>) is made from an unidentifiable bone, both faces and edges having been ground, with the exception of the broken edge at the upper part of the right side. This break is old, as its edges show wear. The ornamentation of this object with bands of irregular incised dots is on one face only, and in workmanship and appearance the pendant resembles certain ornaments made of clam-shell, such as the first specimen in pl. cix. The perforation had been broken out when the object was found, and as it was recovered from beneath a skull, with no evidence of a necklace near, it had apparently been placed alone	
A N D M O N O G R A P H S	4

110	SAN MIGUEL ISLAND
	with the burial rather than in association with other ornaments. OBJECTS OF FISH-BONE It might be supposed that, owing to the limitless number of fish within easy reach of the Indians of San Miguel, and the importance of sea food to them, many implements and ornaments made from the bones of fish would have been recovered, but this was not the case. Although in the general refuse of the village-sites innumerable bones of fish, particularly fragments of vertebræ and head-bones, were observed, few were found in graves. With two burials were discovered a number of the dental plates of the eagle-ray (<i>Myliobatis californicus</i> Gill)—the mouth-bones which enable that fish to crush the shells of oysters, clams, and mussels, on which it feeds. Sixty-four of these were found with one skeleton, and twenty-seven with another, in each case being in a pile near the shoulder. The ridges of these plates overhang the edge of the bony structure and terminate in a sharp point (fig. 19). The writer's experiments indicate
VII	INDIAN NOTES

that these bones could have been used as implements in two ways: as a file or a rasp for smoothing objects of bone, shell, or even of wood, and as a tool for producing the incised decoration found on the edges of

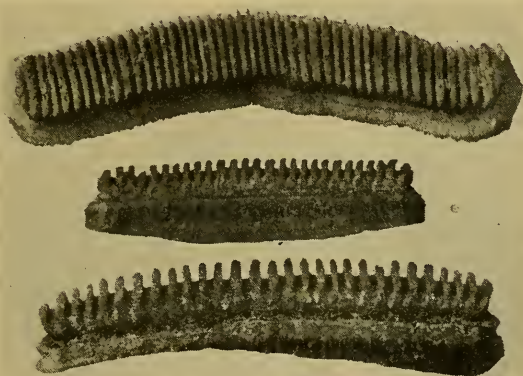


FIG. 19.—Dental plates of the eagle-ray, used as implements. (The uppermost specimen is 2 in. long.)

so many of the ornaments of haliotis shell to be described.

The only instances in which artificially modified fish-bones were encountered are certain small vertebræ used as beads, of which several hundred were found, all too small for identification, as many of them are

less than a quarter of an inch in diameter (fig. 20). These are roughly perforated, with no attempt at smoothing the surfaces. In the collections of this Museum, and obtained from the Karok tribe of northern California, there are two specimens of the toss-and-catch game made with a bone pin; and instead of the usual deer phalanges it has five small fish vertebræ on the string. These are perforated and worked



FIG. 20.—Beads made from vertebræ of small fish.
(Diameter of *a*, $\frac{1}{4}$ in.)

on the outside in a manner similar to those shown in fig. 20. It is therefore very possible that some of these small vertebræ were also used for this purpose, besides being utilized as beads. On one skeleton, in place, was found a necklace composed of seventeen beads made from vertebræ of the large mackerel (*Scombridæ*, probably *Germo ala-*

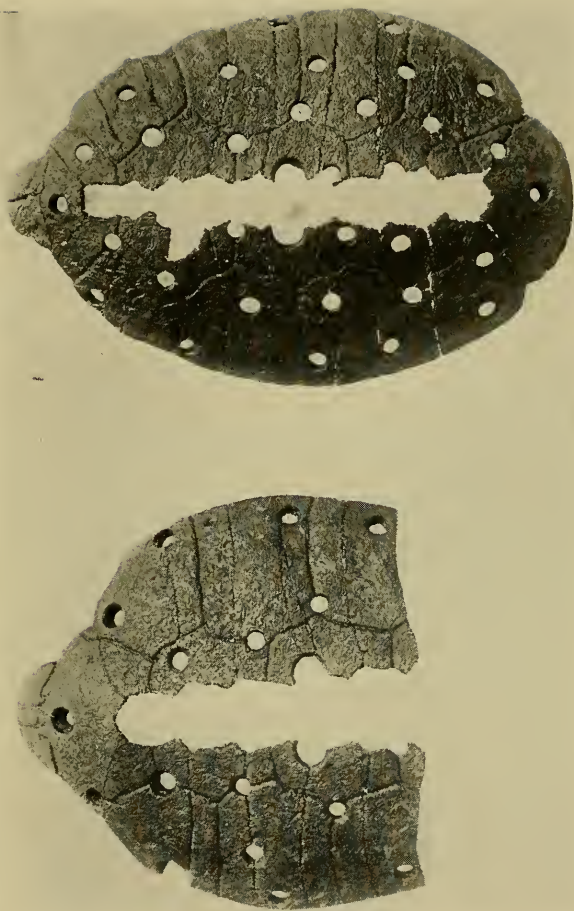
lunga Gmelin), shown in fig. 21. These are not only ground out on the inside, but an attempt has been made to produce more or less symmetry by smoothing the projecting parts, particularly the rims, on the outside.



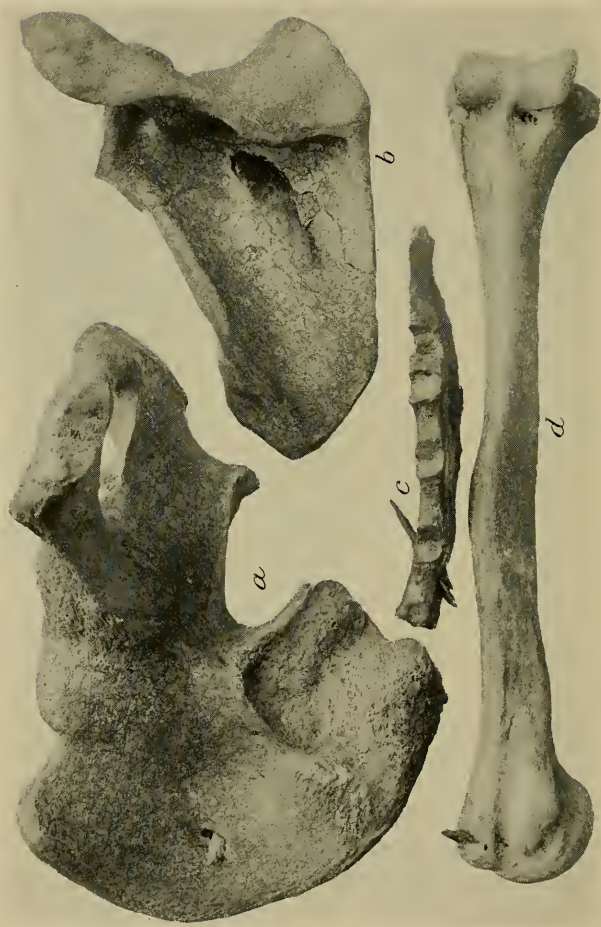
FIG. 21.—Beads made from vertebrae of mackerel.
(Diameter of the first specimen, $1\frac{1}{8}$ in.)

It is not improbable that the small number of fish-bone beads is due to the custom of the islanders of making “beads of the bones of fish, which served them as articles of exchange with the people of the continent,” as previously noted (Herrera, 1615; Burney, 1803).

114	SAN MIGUEL ISLAND
	TURTLESHELL In only one instance was a turtleshell found as an accompaniment to a burial. Pl. LXXI illustrates the entire carapace and part of another of a Pacific mud-turtle, <i>Clemmys marmorata</i> (Baird and Girard), that had been used as the two sides of a rattle. In the collections of the Museum of the American Indian, Heye Foundation, is a turtleshell rattle from San Clemente island. Two carapaces were perforated extensively (as are those from San Miguel here illustrated), small pebbles were placed between them, and the shells were then fastened together around the edges with asphaltum. A larger perforation in the center of the turtleshell enabled a long bird-bone to be thrust through the rattle at a right angle to the shell and secured in place by means of asphaltum. The bird-bone is of the kind provided with a head at one end and a fine point at the other for use as a hair-ornament, as before described. This bone seems entirely too slender to grasp as a
VII	INDIAN NOTES



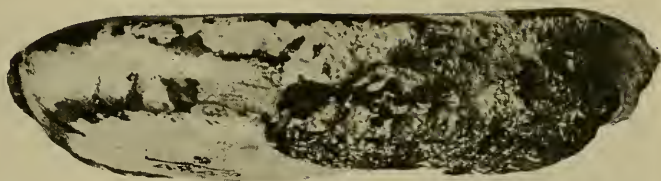
SIDES OF A TURTLESHELL RATTLE
(The one at the right is $4\frac{3}{8}$ in. long)



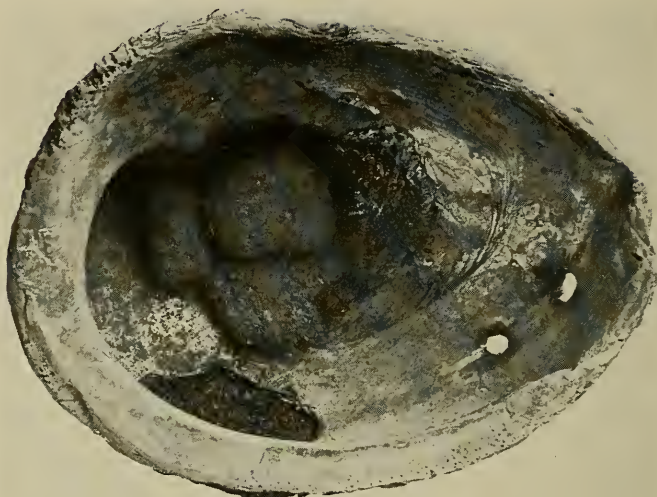
HUMAN BONES PENETRATED BY ARROWPOINTS]
(The arrowpoint in *c* is $1\frac{1}{8}$ in. long)

S K E L E T O N S	115
handle, hence it is likely that the rattle-like object was used as a hair-ornament. Some olivella shell disc-beads are still in place in the San Clemente specimen, each one placed over a perforation in the carapace, the apertures in the discs not being filled with asphaltum. There is little doubt that the turtlesHELLS here shown (pl. LXXI) were used in a manner similar to that described, although neither carapace has any trace of adhering asphaltum. ARROW WOUNDS The human skeletal remains having generally been found in good condition, a comprehensive collection was obtained. A study of their important features is now in progress by the Department of Physical Anthropology of the Museum, and several papers pertaining thereto will ultimately follow the one already published (see Oettingking, 1920). Only four human bones require mention here, as they have been penetrated by stone arrowpoints, as illustrated in pl. LXXII. A right humerus (<i>d</i>) shows the butt of a	
A N D M O N O G R A P H S	4

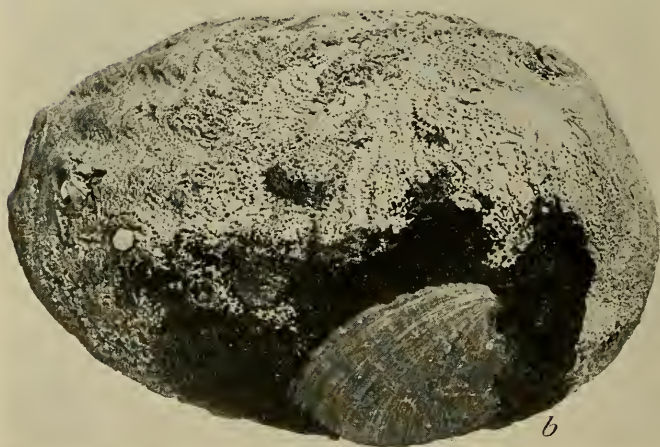
116	SAN MIGUEL ISLAND
	chalcedony point projecting five-sixteenths of an inch from the bone, and presents also an example of osteothytosis. In the case of the sternum (<i>c</i>), the arrowpoint has passed completely through the bone, the projecting end measuring $1\frac{3}{16}$ in. Another finely-finished chalcedony arrowpoint, measuring $2\frac{3}{8}$ in. in length, has been driven entirely through a scapula (<i>b</i>); while a right pelvic bone (<i>a</i>) is of unusual interest because it has been penetrated by two points, one of which, visible in the illustration, has been broken off at the back and projects only seven-eighths of an inch, while the other, on the opposite side near the socket and therefore not seen in the plate, shows merely the tip of a similar point, the surrounding bone at this area exhibiting osteothytosis. With this description it has been seen what an important part bone played in the life of the Chumash of San Miguel, and the skill and facility with which those natives fashioned implements and ornaments therefrom.
VII	INDIAN NOTES



HALIOTIS SHELL USED AS ANASPHALTUM CONTAINER
(Side and inner views. Length, $4\frac{1}{8}$ in.)



a



b

PAINT RECEPTACLE OF HALIOTIS SHELL
(Length, $8\frac{1}{2}$ in.)



HALIOTIS SHELL PENDANT WITH INLAID DECORATION
(Height, $3\frac{1}{2}$ in.)



ORNAMENTS, MADE FROM HALIOTIS PEARLS
(Height of *b*, 2 in.)

SHELL OBJECTS	117
SHELL OBJECTS Most numerous of all artifacts recovered from the graves of San Miguel are the shell ornaments, of almost countless shapes and sizes. As before stated, such ornaments were found almost entirely with skeletons of children, and in a number of cases were arranged in piles surrounding the burials. Many of the small objects made from haliotis shell may have been used as inlays, and others possibly were attached as pendants either to necklaces or to garments, for we know from Costansó (1769, 4) that rude clothing of otter-skin and deerskin was worn by the islanders. Some of the larger shell ornaments were utilized as hair-ornaments, affixed by the long bone pins previously described. UTILITARIAN OBJECTS OF HALIOTIS Of the two species of haliotis shell (popularly known as abalone) found in the vicinity of San Miguel, with few exceptions that known as <i>Haliotis californiensis</i> was used. Great numbers of entire shells of this species were found in the graves, sometimes as	
AND MONOGRAPHS	4

many as eighteen or twenty with a burial, and often they had been placed on the skull. Most of these shells give no evidence of having otherwise been used, although many have seen use as spoons or scoops, a purpose to which they could readily have been put

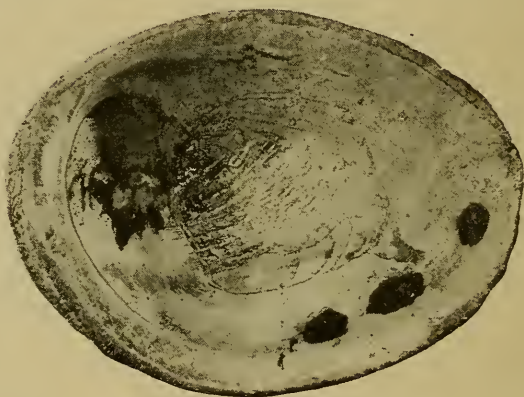
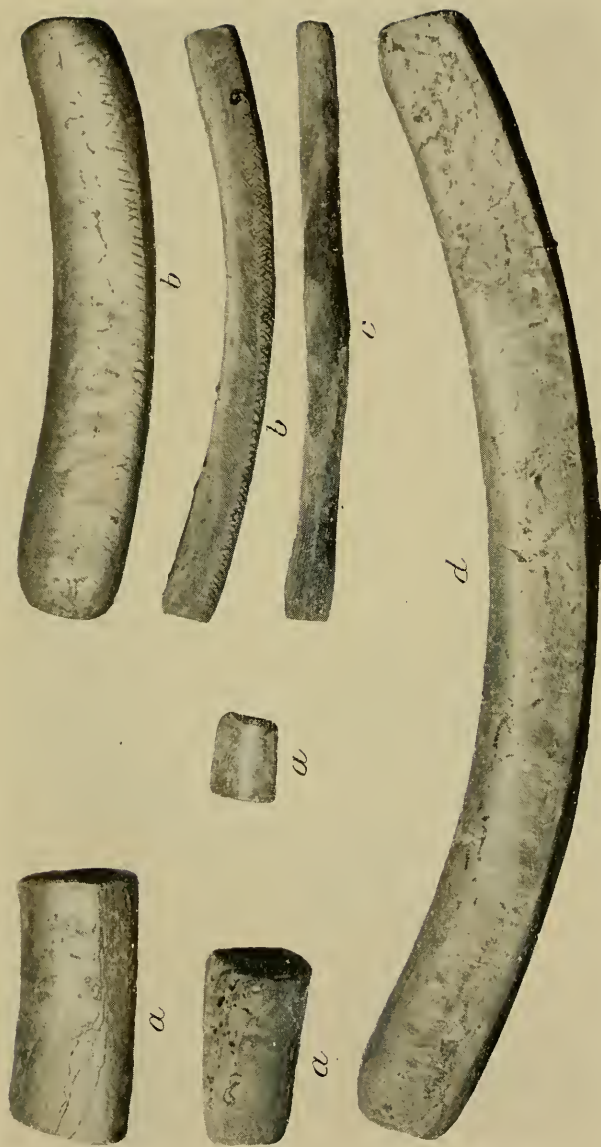


FIG. 22.—*Haliotis*-shell scoop.
(Maximum diameter, $7\frac{5}{8}$ in.)

by stopping with asphaltum plugs the natural apertures always found in them (fig. 22). When treated in this manner such shells were used also for containing asphaltum and oxide of iron (hematite) used as paint. Embedded in the contents of the



BEADS MADE FROM HALIOTIS-SHELL RIMS
(Length of *d*, 4 in.)



PENDANTS MADE FROM HALIOTIS-SHELL RIMS
(The largest is $9\frac{5}{8}$ in. long)

asphaltum receptacle illustrated in fig. 23 is a small haliotis shell that was used for scooping the asphaltum while soft. In order to prevent the contents from spilling, a mass of asphaltum was sometimes applied

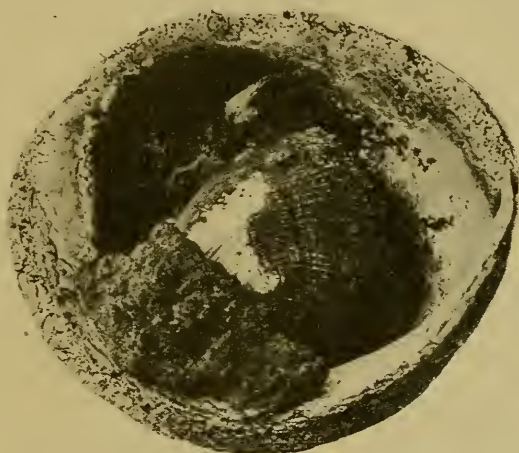
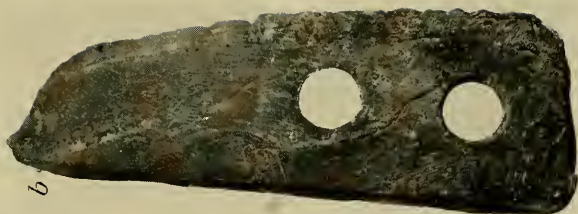
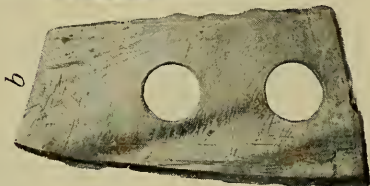
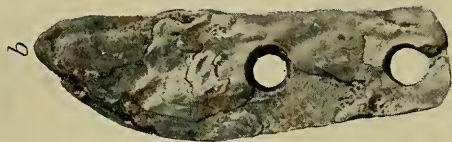
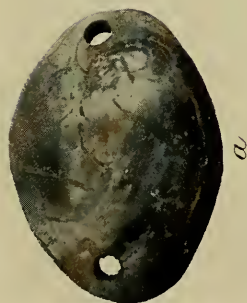


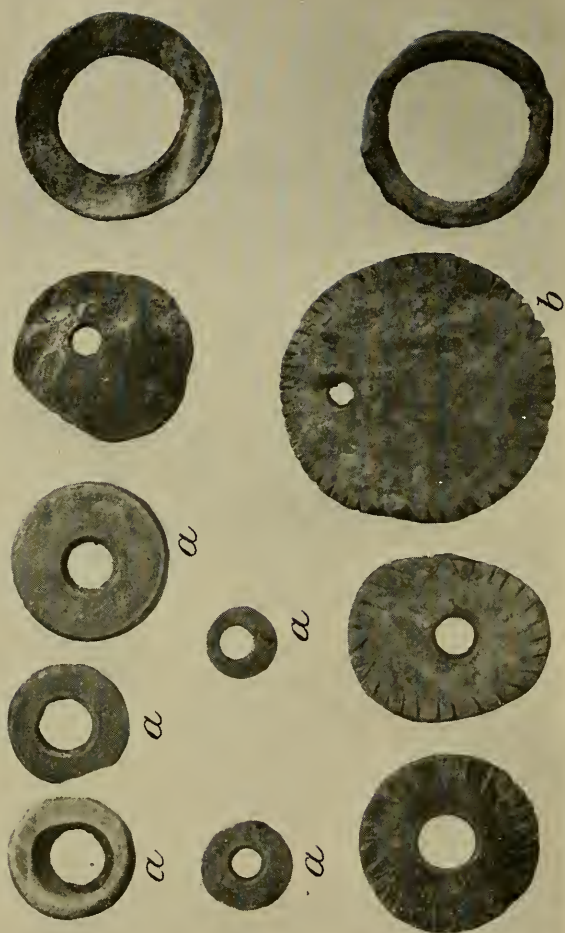
FIG. 23.—Haliotis shell used for containing asphaltum.
(Diameter, $5\frac{3}{4}$ in.)

to the outside to cause the shell to stand level (pl. LXXIII). A haliotis shell used as a receptacle for red paint (pl. LXXIV, *a*) has had a hole broken in its side and repaired on the outer surface with a fragment of another haliotis shell attached with asphaltum (*b*).

120	SAN MIGUEL ISLAND
	ORNAMENTS OF HALIOTIS Of the countless ornaments of haliotis found on the island, only one pendant (pl. LXXV) of that material exhibits any attempt at decoration by inlaying, the usual olivella shell discs having been applied with asphaltum. This object was ground on the side shown in the illustration, and at the lower edge was cut a slight groove (which shows on the left side at the base), to which the asphaltum was applied while soft, and thirteen shell discs were embedded therein. Two perforations for suspension were drilled from the outer side of the shell, shown in the illustration, but no modification of its inner surface appears. The so-called "pearls" of the haliotis—protuberant growths on the inside of the shell having all the beauty of color and iridescence of the shell itself—were used both as beads and as pendants. These pearls were carefully removed, then ground on the edges where necessary, and the surface of the back flattened and smoothed. Depending on form more than on size, they
VII	INDIAN NOTES



UNFINISHED ORNAMENTS OF HALIOTIS SHELL
(Length of *a*, $1\frac{1}{8}$ in.)

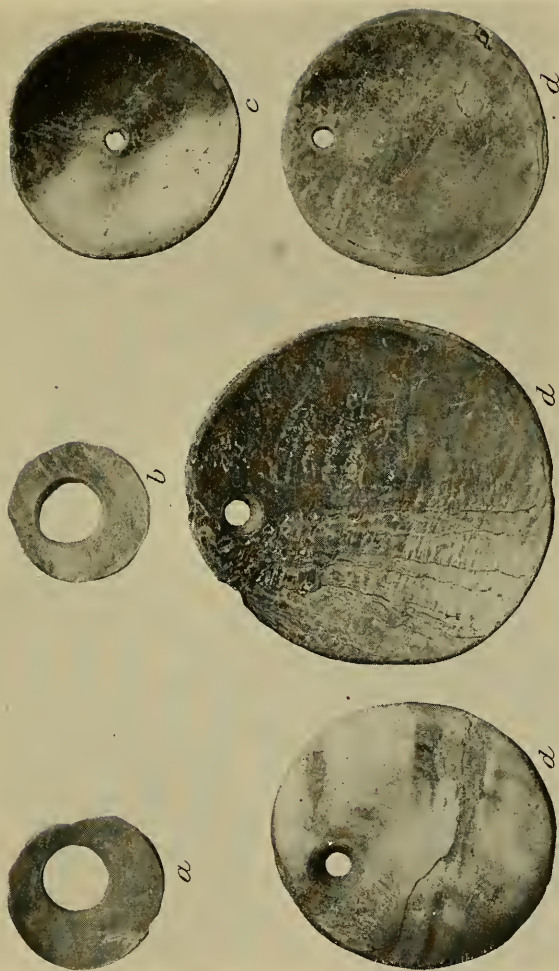


INLAYS OF HALIOTIS SHELL
(Diameter of b , $\frac{3}{16}$ in.)

were finally drilled as a means of suspension. The circular, globular, or ovate pearls (pl. LXXVI, *a*) are generally perforated centrally, while those of irregular form (*c*) are drilled near one edge. The largest one encountered (*b*) weighs more than two ounces, and besides the usual perforation has a groove across the top and connecting both openings of the perforation, thus affording a means of tying it securely. This specimen is 2 in. high and $1\frac{1}{2}$ in. thick at the base, while the greater diameter of the perforation is five-eighths of an inch.

The thick rim of the haliotis was also used for beads and pendants (pl. LXXVII, LXXVIII). When beads were desired, the rim of the shell was broken off, the rough edge and the ends were ground, and then, on account of the natural curve, the perforation was drilled from both ends until the holes met in the center. A more or less successful attempt to make some of the short beads straight by grinding their outer surfaces is shown in pl. LXXVII, *a*, and in a few cases a similar attempt had been made with longer ones (*c*). The specimen shown in *d*, the

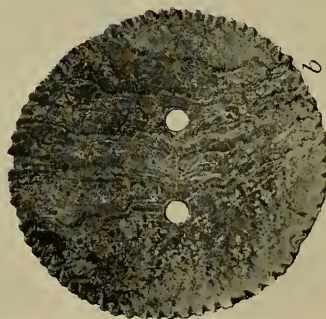
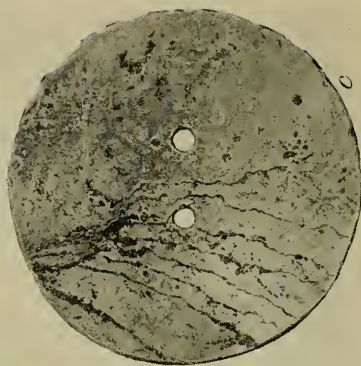
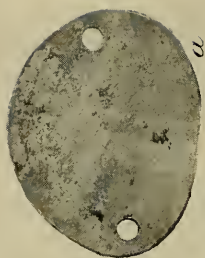
122	SAN MIGUEL ISLAND
	largest one found, is a fine example of the perfection reached by the Chumash in drilling objects of this kind. Although this object is 4 in. long, the drilling meets in the center, so that a cord may easily be passed through it, yet the diameter of the perforation at the ends is a little less than an eighth of an inch. No stone drill approaching the length necessary for such a perforation was found, but it might have been effected with a small, pointed, stone flake mounted on the end of a reed or a stick. This form of bead is also found with incised decoration (pl. LXXVII, <i>b</i>), such as is commonly to be seen on ornaments of haliotis shell. This embellishment consists of a series of short, crossed lines at or near the edge of the object, occasionally with the motive repeated for two or more rows, producing a checkered effect. At other times, instead of cross-lines the decoration takes the form of short, parallel, straight lines, in many instances being so regularly applied, both as to spacing and direction, that it seems almost incredible that they were made one at a time. An object with which
VII	INDIAN NOTES



CIRCULAR ORNAMENTS OF HALIOTIS SHELL
(The largest is $1\frac{13}{16}$ in. in diameter)

HEYE—SAN MIGUEL ISLAND

PL. LXXXII



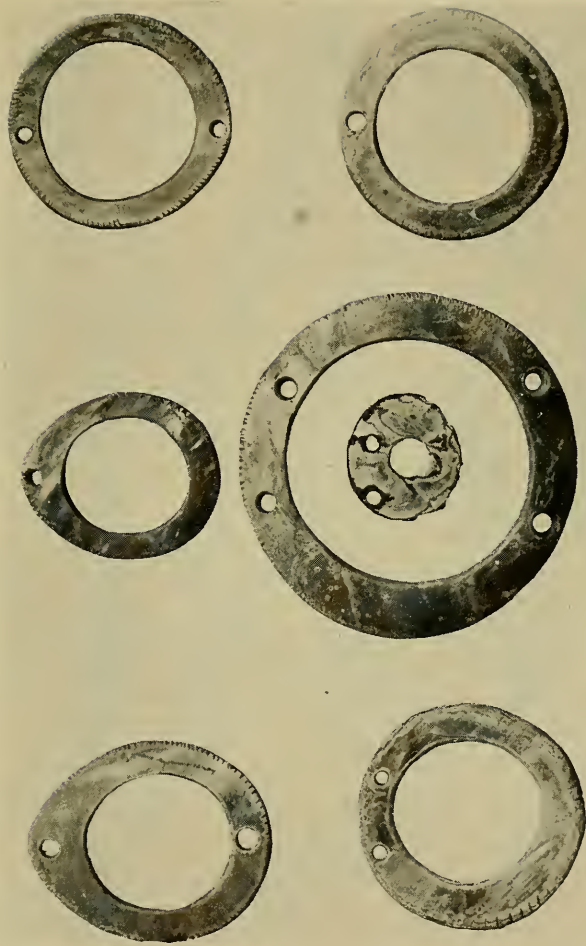
ORNAMENTS OF HALIOTIS SHELL WITH TWO PERFORATIONS
(Diameter of *c*, $1\frac{11}{16}$ in.)

this effect could readily have been produced is the dental plate of the eagle-ray (see fig. 19). This process was discussed on pages 110-111.

Pendants made from similar pieces of the rims of abalone are illustrated in pl. LXXVIII, all the specimens of this type having the imperforate end ground to a point. The largest specimen shown has not been drilled, nor, unlike the others, does it show flattening by grinding on the outer side of the shell at its larger end. The smaller end, however, is pointed, and as the object as a whole is ground to shape, it undoubtedly is a blank for a pendant of this type. As will be seen by the illustration, both plain and decorated pendants of this form were procured.

Unfinished ornaments of *haliotis* were seldom encountered; those found are represented in pl. LXXIX. Most of the edges of these have been cut, but some show the natural fracture of the shell. They were all roughly ground on the side that formed the outer surface of the shell, and then, after having been thinned in this manner, the

124	SAN MIGUEL ISLAND
	holes were drilled before an attempt was made to grind the edges to their desired shape. An almost completed pendant (<i>a</i>) was cut from the thick part of the shell where the edge curves under, and was ground throughout to produce a shape resembling an entire haliotis shell. This ornament appears to have been completely finished, with the exception of the incised decoration along the upper edge, which had been only commenced. It is impossible to distinguish the many discs of haliotis used as beads from those which served as inlays. It is probable that many of them were put to both uses, as is the case of the discs fashioned from the olivella. Many of the smaller ones (pl. LXXX, <i>a</i>) were found at or near the necks of skeletons, and therefore may properly be classed as beads, while the others shown in the plate were probably used as inlays. They are all very thin, and those ornamented with incised lines bear this decoration only upon one side. Most of the shell inlays were perforated in order that, when laid on the soft asphaltum, the hole might be
VII	INDIAN NOTES



ANNULAR TYPE OF HALIOTIS SHELL ORNAMENTS
(Diameter of the largest, $1\frac{1}{2}$ in.)

HEYE—SAN MIGUEL ISLAND

PL. LXXXIV



ORNAMENTS OF HALIOTIS SHELL WITH TWO PERFORATIONS
(The lower specimen is $3\frac{1}{2}$ in. long)

filled by it, thus aiding to keep the shell in place after the asphaltum became hard.

Other abalone shell discs were found with a large or a small perforation in the center, and others with a small hole near the edge (pl. LXXXI). Besides having been carefully ground and smoothed on the edges, four of the specimens shown (*c*; *d*) have been smoothed by grinding on both faces.

A necklace of twenty-two rudely oval discs of the same kind of shell (pl. LXXXII, *a*) were found with a skeleton. Although these ornaments are approximately uniform in size, the perforations (of which there are two in each) vary considerably in diameter, and are widely separated, as may be observed from the three specimens illustrated. These are the only examples of this type of ornament made of haliotis found by the expedition, although a few similar ones of musselshell were recovered from another grave. Other discs of abalone with two perforations nearer together (*b*, *c*) are numerous—some plain, others bearing the usual incised decoration. One (*b*) differs in this respect, as it presents a serrated edge.

Annular ornaments of haliotis are always provided with one perforation at least, and some have as many as four (pl. LXXXIII).

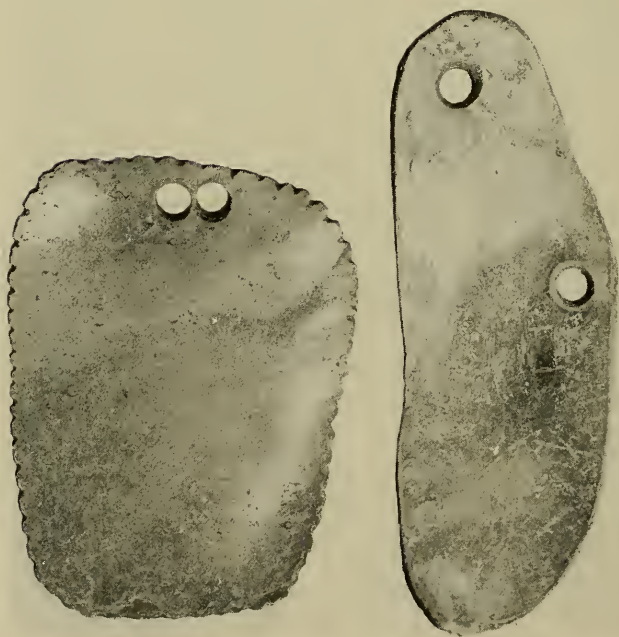
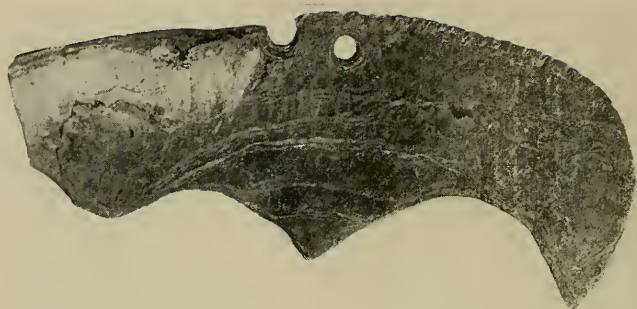


FIG. 24.—Pendants of haliotis shell.
(Length of the larger, $2\frac{1}{8}$ in.)

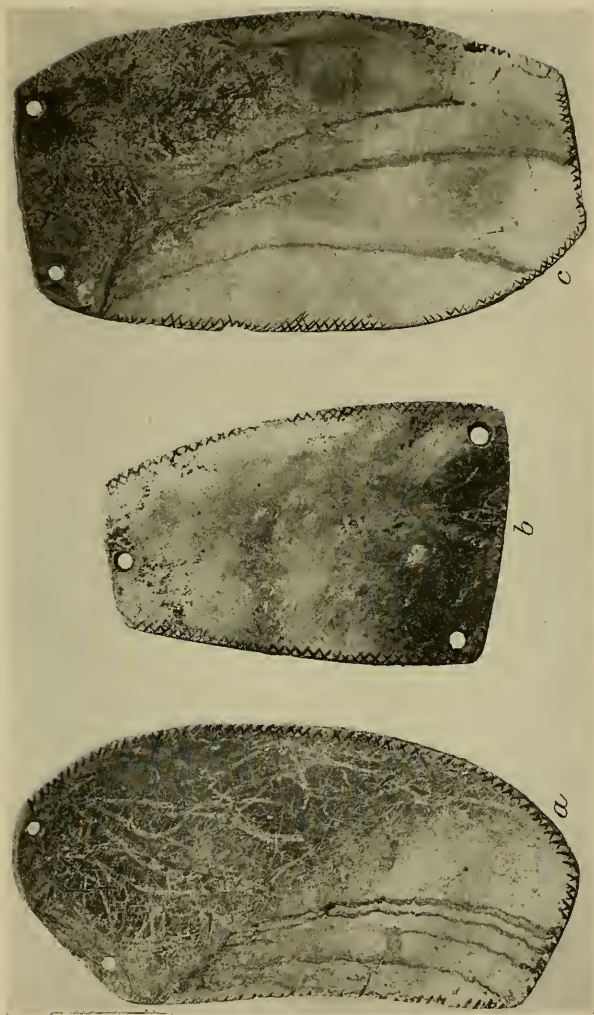
With the exception of the smallest one illustrated, these rings have the usual incised



ORNAMENTS OF HALIOTIS SHELL WITH TWO PERFORATIONS
(The specimen in the upper left-hand corner is $1\frac{15}{16}$ in. high)



ORNAMENTS OF HALIOTIS SHELL WITH TWO PERFORATIONS
(The upper specimen is $3\frac{1}{8}$ in. long)



ORNAMENTS OF HALIOTIS SHELL
(Height of *c*, $2\frac{1}{8}$ in.)



ORNAMENTS OF HALIOTIS SHELL WITH THREE PERFORATIONS
(The specimen in the lower left-hand corner is 1 in. long)

decoration at the periphery on both sides. The small holes might have been the means of suspending other ornaments, or were em-

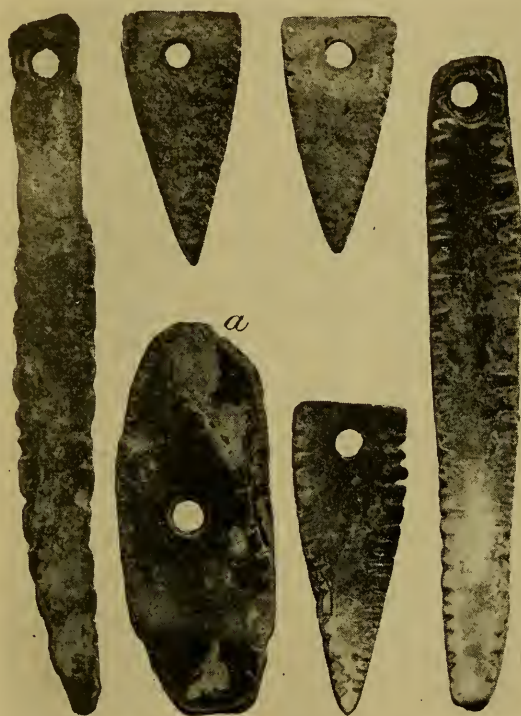
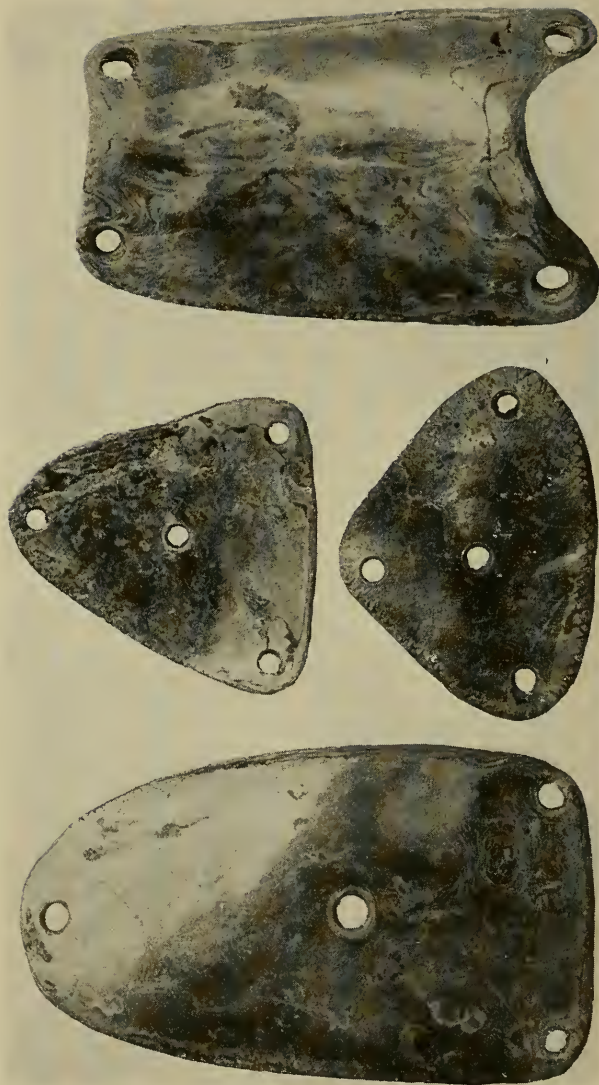


FIG. 25.—Triangular ornaments of haliotis shell with incised or notched edges. (The longest specimen is 2 in.)

128	SAN MIGUEL ISLAND
	played in conjunction with hooks made of shell, a subject that will be discussed later. Pendants of haliotis with rounded top and one point are common, and vary greatly in size. The extremes of the plain type are shown in fig. 24. Others, triangular in form, and also varying in length, as shown in fig. 25, are ornamented with incised and notched edges. One example here shown (<i>a</i>), which seems to have been originally of this type, has been broken off and the fractured edge reground; but the decoration on the original edge does not appear on the newly finished part. In all the pendants presented in this illustration, both surfaces have been ground. The largest ornaments of haliotis shell with two perforations are represented in pl. LXXXIV. These have been ground on both flat surfaces, and bear incised decoration at the edge on one side only, the lines on the larger ornament having greater intervals than usual. The slender specimen has been so fashioned that parts of two of the natural holes of the shell have been utilized to modify the straight line of the lower edge.
VII	INDIAN NOTES



ORNAMENTS OF HALIOTIS SHELL WITH THREE PERFORATIONS
(The largest is $3\frac{1}{8}$ in. long)



ORNAMENTS OF HALIOTIS SHELL WITH FOUR PERFORATIONS
(The right-hand specimen is $1\frac{1}{2}$ in. long)

PENDANTS	129
Many other forms of haliotis ornaments with two perforations were found, as may be seen in pl. LXXXV, LXXXVI, and LXXXVII, <i>a</i>, <i>c</i>, which present examples with plain and decorated edges, the latter both incised and notched. In order to eliminate the rough exterior and to reduce the shell to the thinness required for pendants or inlays, these objects were always ground on one of their flat surfaces and in some cases on both; but generally the inner face of the shell was left in its natural state in order to preserve its luster and iridescence. It would not seem to have been necessary to provide such small ornaments with more than one or two perforations as a means of suspending them; hence we may only conjecture that, in the specimens of that type to be described, a greater number of perforations was provided for the purpose of fastening the ornaments more securely to garments; or, if used as inlays, there would be more than one or two points for aiding the asphaltum to secure the ornaments. To facilitate comparison, the haliotis objects to be described are grouped by	
AND MONOGRAPHS	4

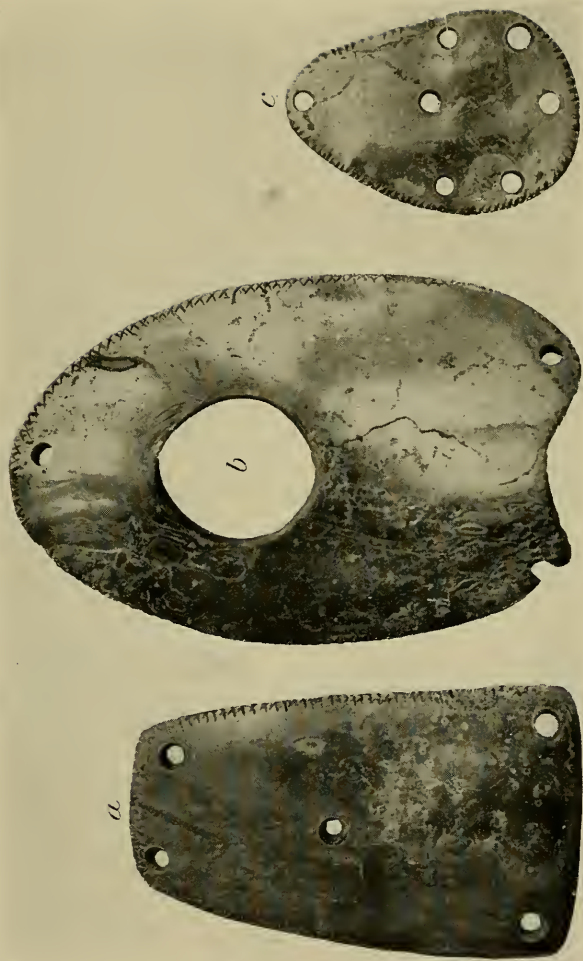
130	SAN MIGUEL ISLAND
	the number of their perforations. Those with three holes are shown in pl. LXXXVII, <i>b</i>. In examples of irregular shape (fig. 26) the openings have designedly been placed wherever an angle occurs; in others (pl. FIG. 26.—Ornaments of haliotis shell. (The upper specimen is $3\frac{7}{16}$ in. long.) LXXXVIII) they have been disposed triangularly; and in still others (pl. LXXXIX) they are in alignment. Similar ornaments with four perforations are illustrated in pl. XC-XCII. In all specimens of this class it will be observed that
VII	INDIAN NOTES



ORNAMENTS OF HALIOTIS SHELL WITH FOUR PERFORATIONS
(The middle ornament is $3\frac{1}{8}$ in. long)



ORNAMENTS OF HALIOTIS SHELL WITH FOUR PERFORATIONS
(The longest is $1\frac{1}{3}$ in.)



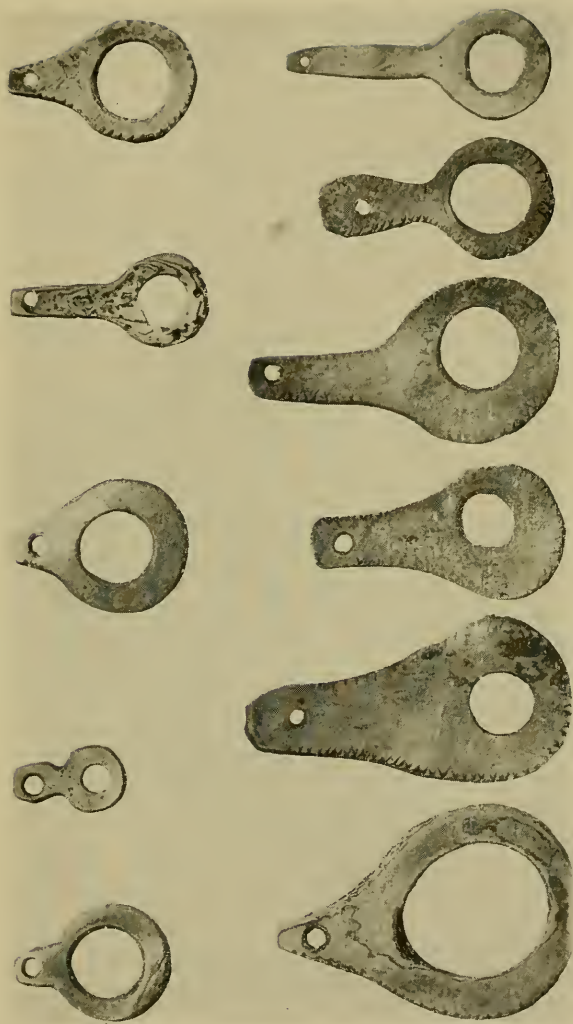
ORNAMENTS OF HALIOTIS SHELL WITH SUNDRY PERFORATIONS
(Height of *b*, 2 in.)



ORNAMENTS OF HALIOTIS SHELL WITH SUNDRY
PERFORATIONS
(Length of *b*, $1\frac{13}{16}$ in.)

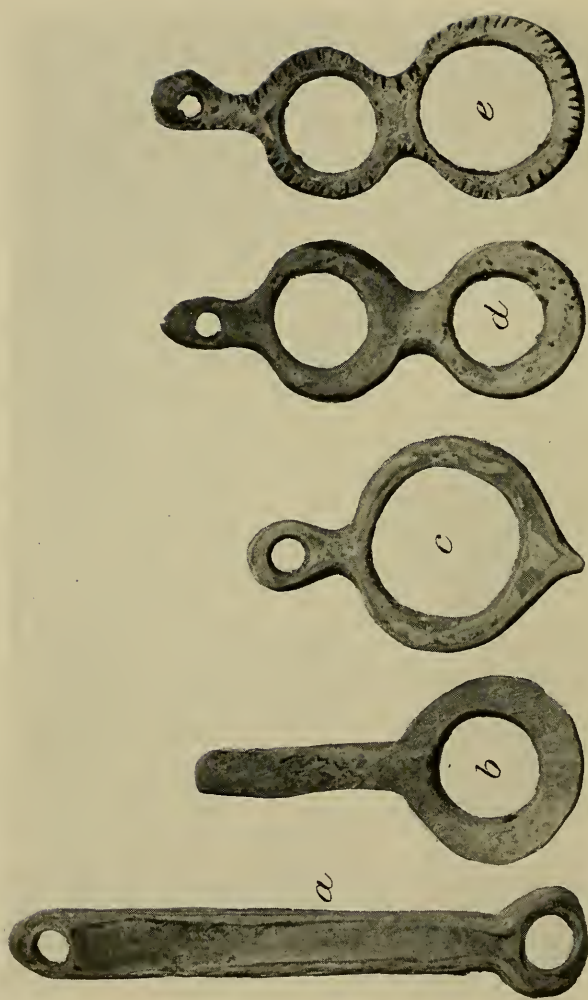
PERFORATED OBJECTS	131
two of the holes are always at one end of the object, while the others vary as to position. There is no other feature in which these differ from other forms of the same type of shell ornaments. An ornament exceptional among those of the four-hole class has three small perforations and a large central one (pl. xciii, <i>b</i>). Curiously enough, there is only one ornament with five perforations (pl. xciii, <i>a</i>), and also a single one with seven (<i>c</i>). That similar shell objects were made with even more perforations, however, is shown by the fragment of one illustrated in pl. xciv, <i>c</i>. This ornament has a scalloped edge, and at each point a hole is drilled, besides a larger one in the center. Including the latter there are nine perforations to be seen in this fragment, and before breakage there were doubtless others. A curious specimen is that notched at one end and perforated at the other (pl. xciv, <i>a</i>). An opening extends from the aperture to the end; it was purposely made, for not alone have the edges been smoothed, but traces of the groove made by the cut-	
AND MONOGRAPHS	4

132	SAN MIGUEL ISLAND
	ting tool are visible on the side of the perforation opposite to that in which the slot enters. Perforated haliotis ornaments of unique shape (pl. xciv, <i>b-d</i>), but of the same general type, were found, one of them (<i>b</i>) rudely resembling a fish with a pronounced dorsal fin. Another type of haliotis ornament numerously represented is annular, with a projection in which appears a small perforation (pl. xcv, xcvi). These projections are of many forms and of varying length, and of the hundreds found, a collection of twenty-three, uncovered in one grave, alone lack the small perforation in the "handle" end (pl. xcvi, <i>b</i>). They may not have been finished, for none of them shows any trace of the incised decoration found so commonly on the others. A few objects of the same form, varying slightly in having a small projecting point in the rim opposite the handle, were obtained (pl. xcvi, <i>c</i>). Another variant from the general type has two large holes instead of one, and the perforated projection is much shorter (<i>d, e</i>). There
VII	INDIAN NOTES



ORNAMENTS OF HALIOTIS SHELL

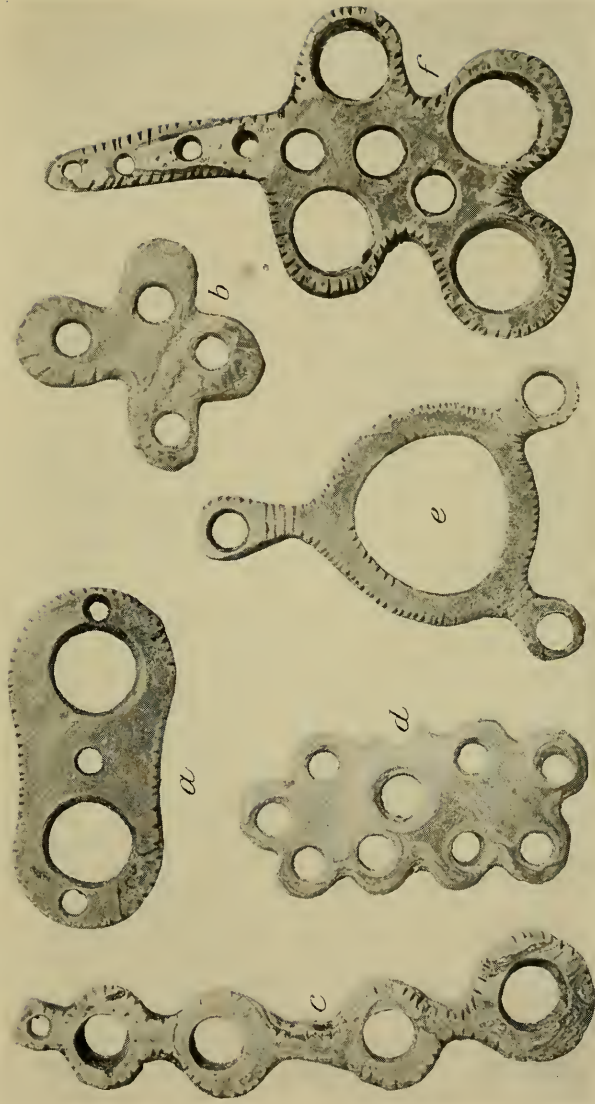
(The second specimen in the lower row is $1\frac{1}{4}$ in. high)



ORNAMENTS OF HALIOTIS SHELL
(Length of *a*, 1 $\frac{3}{8}$ in.)

SHELL HOOKS	133
are both plain and decorated examples of this form in the collection. Elaborated from forms already illustrated are the ornaments shown in pl. xcvii, which display considerable dexterity by the manner in which they have been perforated, especially the two that have nine and eleven holes respectively (<i>d</i>, <i>f</i>). With two exceptions (<i>b</i>, <i>d</i>) all the objects represented in the plate have more or less asphaltum adhering to their outer edges and incised decoration, and also in the perforations, indicating that they had been used as inlays; but nothing found in the graves accompanying these objects could have served as their bases. Those with incised ornamentation bear this feature only on one side. HOOKS The well-known hooks made from <i>haliotis</i> or from musselshells, common to the California islands, were also numerous on San Miguel. Although generally referred to as fishhooks, and some undoubtedly were employed as such, the size and shape of many	
AND MONOGRAPHS	4

134	SAN MIGUEL ISLAND
	of them would seem to preclude their use in fishing. To quote Bowers (1883): “I also have in my possession a series of these ornaments, but it would require a broad stretch of the imagination to believe that they were intended for fish-hooks. The point, which in many instances curves downward, comes so near the stem that it would be next to impossible for them to become hooked in a fish’s mouth. . . . The first of these ornaments of which I have any knowledge, I found in a rancheria at Rincon, on the line between Santa Barbara and Ventura counties; and during five years’ subsequent residence at Santa Barbara, and the exploration of the mainland and islands, I had an opportunity to study them in every stage of development. I am convinced that, with few exceptions, they were designed for ornaments, as their shape precludes the idea of their use as fish-hooks. They were probably suspended from the ears, and possibly worn on other portions of the body.” In a brief illustrated account of certain archeological objects from San Miguel island in possession of the late Horatio N. Rust of Pasadena (see the bibliography, Archeological Collections, 1907), it is stated: “These hook-like objects have generally been classed as fish-hooks, but were regarded by Mr. Rust as ornaments. He conceived that they
VII	INDIAN NOTES



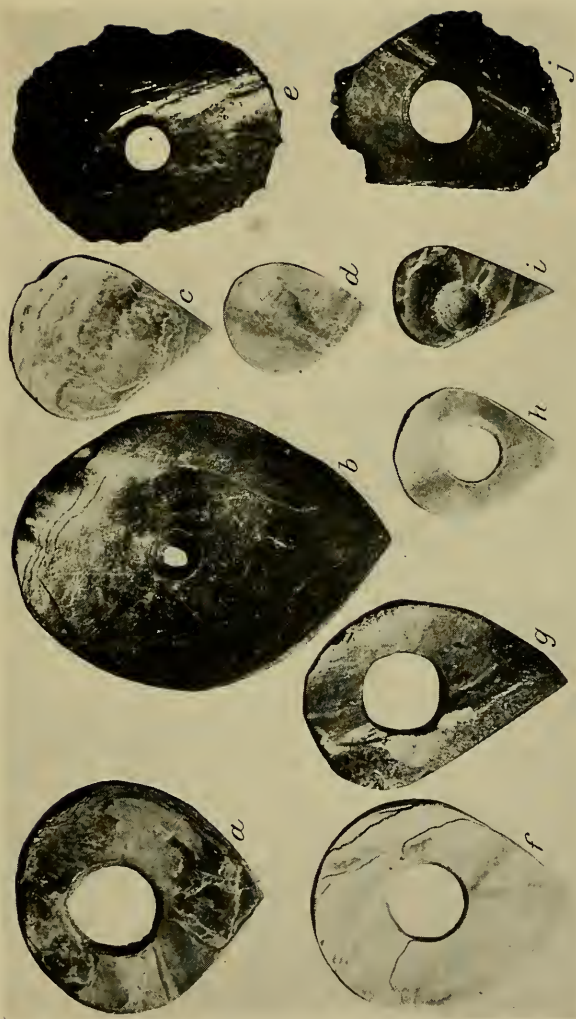
ORNAMENTS OF HALIOTIS SHELL
(Length of *c*, 1 $\frac{1}{8}$ in.)



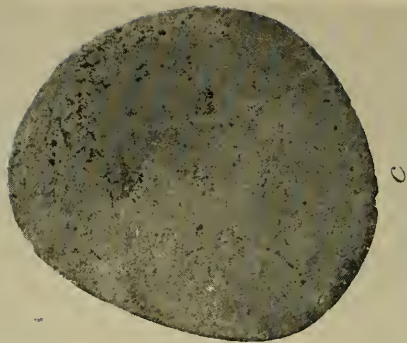
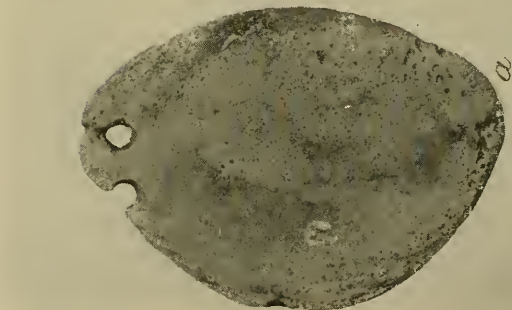
SHELL HOOKS
(Height of *a*, 1½ in.)

SHELL HOOKS	135
may have served as a means of holding or attaching strings of beads or other pendant objects." Shell hooks measuring only three-eighths of an inch in maximum width, such as the one illustrated in pl. xcviii, <i>b</i>, could hardly have served for such a practical purpose as that to which fishhooks are applied, nor could those whose openings are very small (<i>e</i>, <i>f</i>, <i>i</i>) have been thus employed. Some shell hooks are provided with grooves for the attachment of cords (<i>a</i>, <i>c</i>, <i>d</i>), while others are notched in order that the cord could be wound around them (<i>h-k</i>). One of the latter kind (<i>j</i>) is not round, but is shaped more like the metal fishhooks used today. This example is made from a musselshell, as are the round ones shown in <i>d</i>, <i>e</i>, <i>g</i>, but all the others are of haliotis shell. One (<i>f</i>), with neither groove nor notch, has still adhering to it asphaltum that bears slight impressions of cord-wrapping around the shank. Not alone were finished hooks found, but others in various stages of manufacture; for instance, the beginning of the process,	
AND MONOGRAPHS	4

136	SAN MIGUEL ISLAND
	whereby a crudely chipped or cut disc is merely perforated, as exhibited in pl. xcix, <i>e, j</i>; and there are other examples, all of musselshell, showing the primary processes. The other examples illustrated are of haliotis shell, and as the finished hooks are all of this material, it would seem that the rough blanks were shaped (<i>c, d</i>) before perforation was made (<i>i</i>). After a small hole had been drilled through the shell (<i>b</i>), it was enlarged (<i>a</i>), then one side (<i>f, g</i>) was ground to a straight edge, and sometimes both (<i>h</i>). The final process in the manufacture of these objects was the cutting of the opening that forms the point (pl. xcvi, <i>g</i>). As musselshell is much more friable than abalone, the ancient inhabitants of San Miguel doubtless broke many blanks made from the former during the process of perforation, hence they aimed to complete this part of the work before wasting labor on elaborating the objects into their final shape only to see them destroyed by drilling. As to the practicability of these shell hooks for fishing, Mr Glidden, in charge of the expedition, has caught rockbass weigh-
VII	INDIAN NOTES



VARIOUS STAGES IN THE MANUFACTURE OF SHELL HOOKS
(Height of *b*, 2 in.)



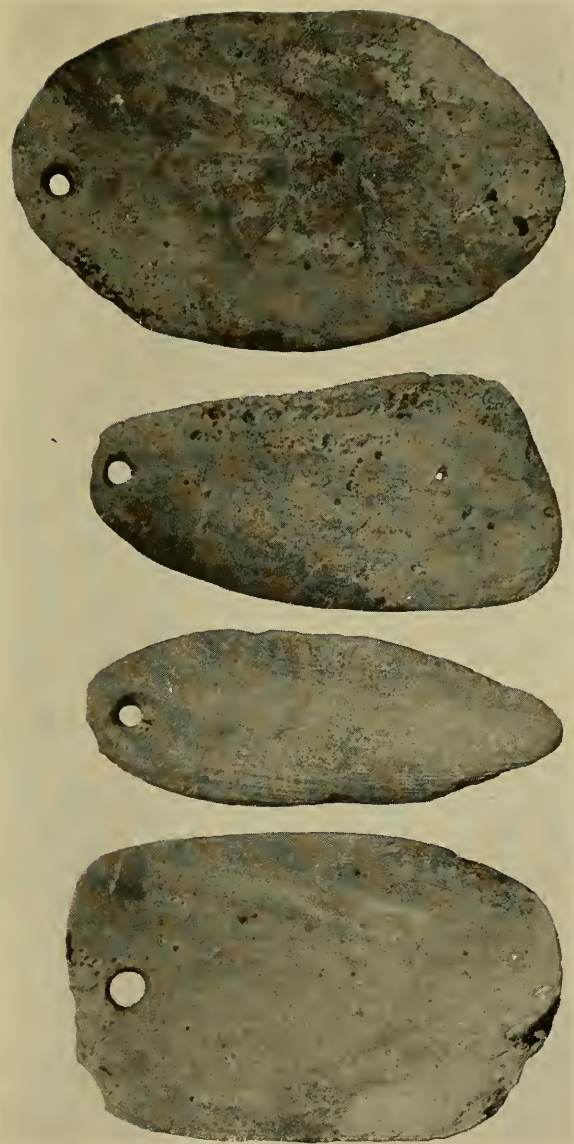
UNFINISHED PENDANTS OF CLAM-SHELL
(Height of *b*, $3\frac{3}{4}$ in.)

ing as much as two pounds, as well as smaller fish, with hooks resembling in size and shape that illustrated in pl. xcviii, *h*.

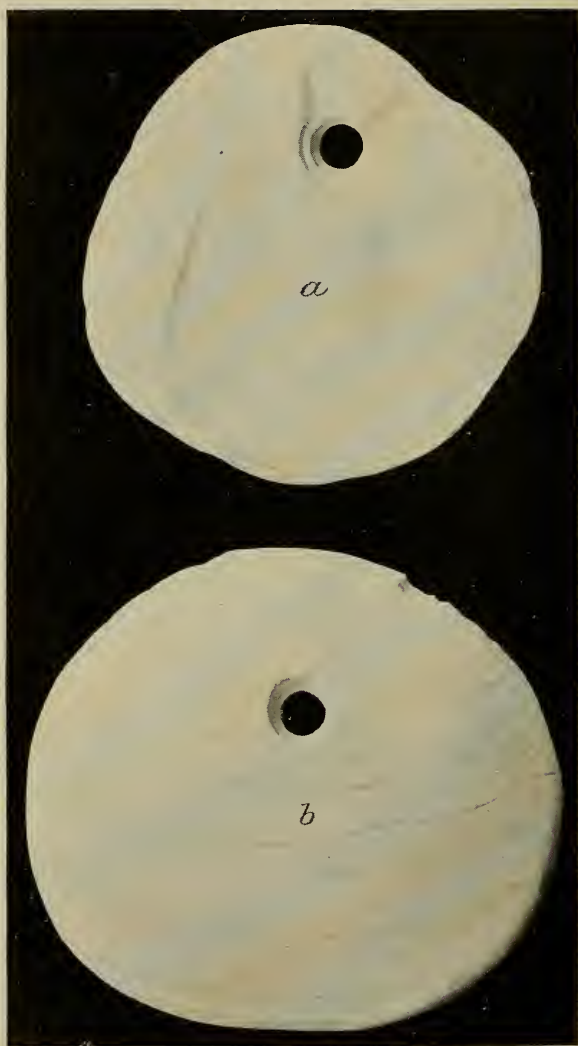
OTHER SHELL OBJECTS

Although haliotis shell was extensively used for making ornaments, many other species, particularly that of the clam (*Tivela crasatelloides* Conr.), were likewise utilized. Pendants made from clam-shell are very numerous, and generally are much larger than those of haliotis. Owing to its thickness and weight, it is doubtful if any of the pendant-like objects manufactured from clam-shell were used as inlays. One only of this class (pl. c, *c*) was found without a hole for suspension, and this, like the others represented in the same plate, was ground flat on the face shown—the original inner surface of the shell. This imperforate object is probably an unfinished pendant; it bears the same form as the other two, which are provided with one (*b*) and with two (*a*) drilled holes. In the case of *a* it would appear that one perforation, made too near the edge, had broken out, whereupon an-

138	SAN MIGUEL ISLAND
	other was drilled and a small shallow groove made to extend from the opening over the edge of the shell to facilitate tying and to prevent chafing of the cord. More oblong pendants of the same kind of shell, with a single perforation in each, are shown in pl. CI. As in the case of the pendants just described, only one surface has been ground flat. Only two circular clam-shell pendants having one perforation were found (pl. CII). The holes in these are biconical, and one of them (<i>b</i>) is exceptional in having both of its surfaces ground down and smoothed, the striation still showing plainly on what had been the outer surface of the shell. A smaller pendant, rudely circular, and with two perforations, is shown in pl. CIV, <i>b</i>. This was fashioned from a much smaller shell, and it was found necessary to grind it on one side only. Another circular object (pl. CIII, <i>a</i>), annular in shape, having no small perforation for suspension, may have been used in conjunction with a bone pin as a hair-ornament. This specimen, which is a quarter
VII	INDIAN NOTES



PENDANTS OF CLAM-SHELL
(The fourth specimen is $2\frac{1}{8}$ in. high)



CIRCULAR PENDANTS OF CLAM-SHELL
(Maximum diameter of *b*, $2\frac{7}{16}$ in.)

of an inch thick at the opening, has been ground smooth on both sides. Two pendants made from small clam-shells (pl. ciii, *b*, *d*) have been ground only at their edges, but the general shape of the natural shell is retained; the drilling in both of these is also biconical. The smallest pendant of



FIG. 27.—Pendant of clam-shell.
(Extreme length, $3\frac{1}{4}$ in.)

clam-shell (*c*) has been ground not only on the edges but also on the face, which is the convex outer surface of the shell. Another, which retains the shape of the original shell (fig. 27), differs from those illustrated in pl. ciii in that both surfaces have been

ground to such an extent that the pendant is very flat, and it has been carefully finished throughout.

Clam-shell pendants shaped like the section of a truncated cone (fig. 28) are not uncommon. These objects, like the others,

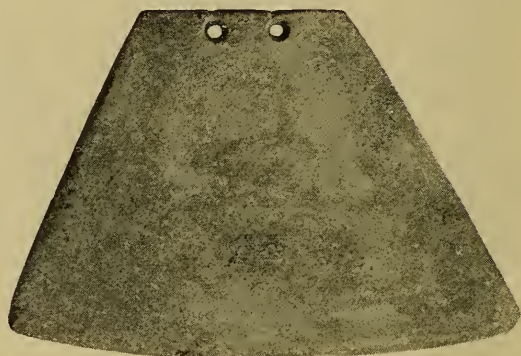
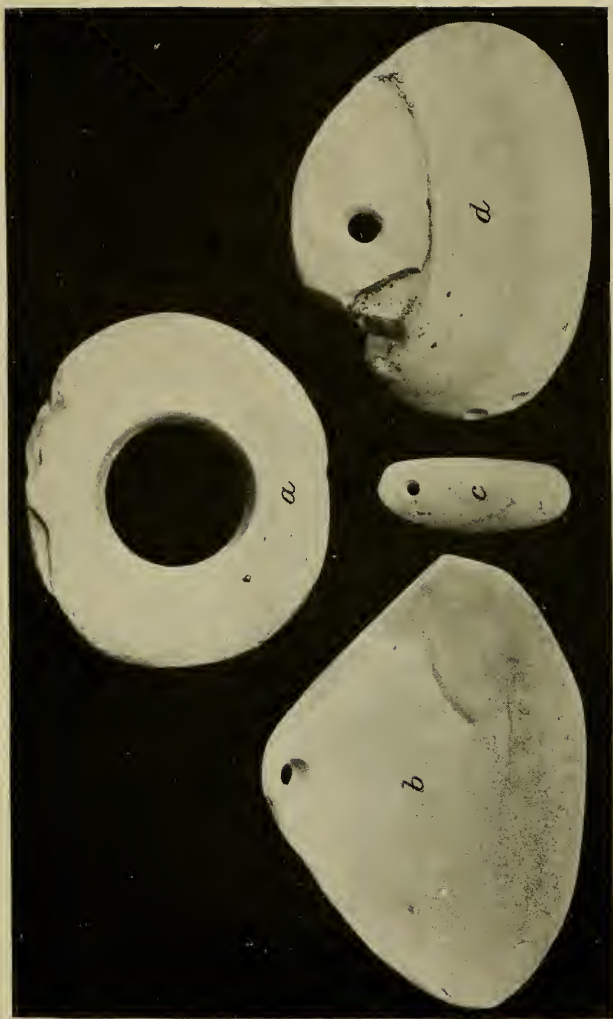
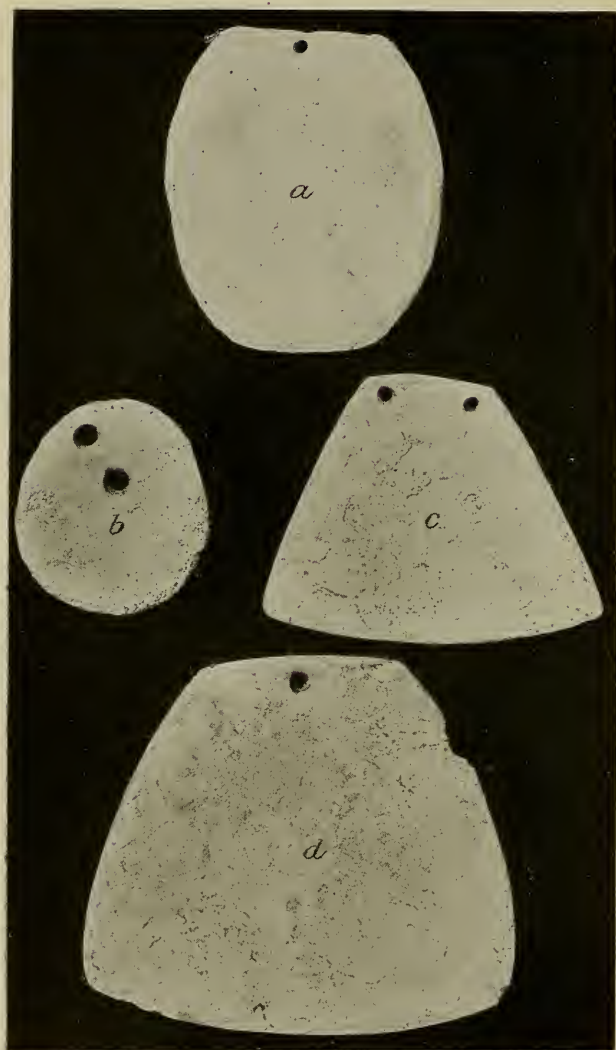


FIG 28.—Pendant of clam-shell.
(Length at base, $3\frac{3}{4}$ in.)

have been thinned and flattened by the usual grinding process on both surfaces. Examples were found with one and two perforations (pl. CIV, *c*, *d*), always drilled near the shortest edge. Those with double holes predominate. Most of them have a small



PENDANTS OF CLAM-SHELL
(Maximum diameter of *a*, $1\frac{1}{2}$ in.)



PENDANTS OF CLAM-SHELL
(Width of *d*, $4\frac{1}{8}$ in.)



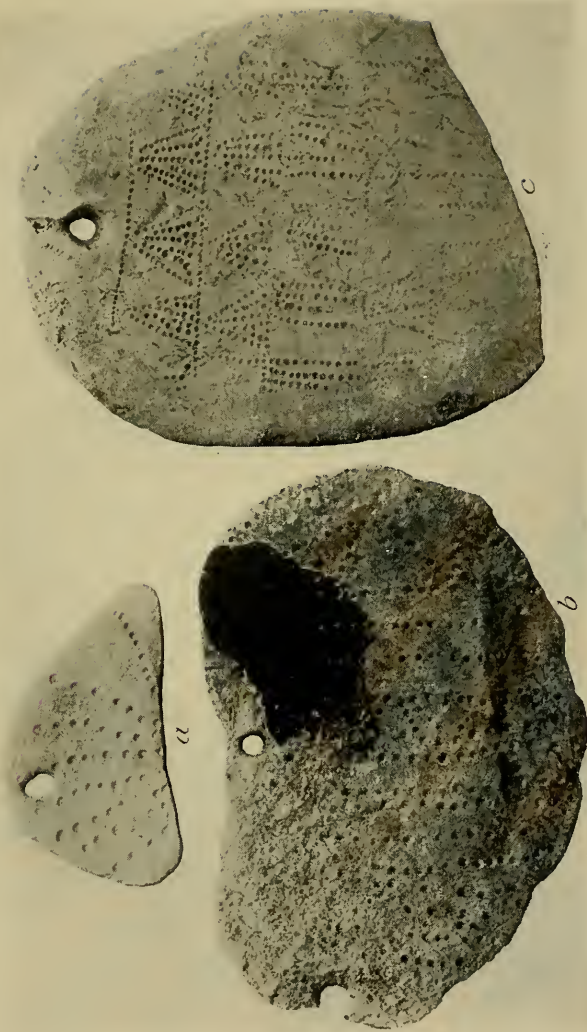
PENDANTS OF CLAM-SHELL
(Width of *a*, $2\frac{3}{16}$ in.)



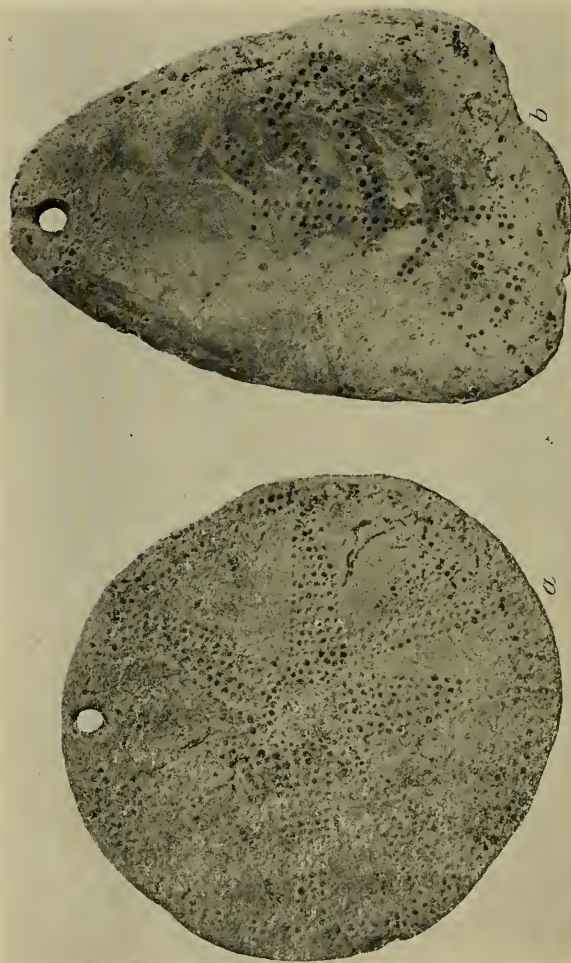
CLAM-SHELL PENDANTS, BROKEN AND REDRILLED
(The larger specimen is $3\frac{1}{2}$ in. long)

P E N D A N T S	141
channel cut across the edge and meeting the aperture, as shown in fig. 28. No clam-shell pendant was gathered on San Miguel with the small incised crosses bordering the rim, so characteristic of the haliotis pendants, and there are only two (pl. cv) that exhibit notching at the edge. One of these (<i>a</i>) had been decorated with an inlay, as attested by the particles of asphaltum adhering thereto. In many cases, however, these ornaments are embellished with a number of small dots similar to those on some of the bone pendants already described. Pl. cvi shows two specimens of this kind, but the dots are not arranged in the form of a design. A perforation that has been broken may be seen at the lower end of each of the pendants, which evidently were regarded as of sufficient importance to warrant redrilling at the opposite ends for further use. Pendants with incised dots conventionally grouped were also recovered (pl. cvii). In one of these (<i>a</i>) the lines radiate from its base, recalling the statement by Bowers (1878, p. 318), who says that the Chumash	
A N D M O N O G R A P H S	4

142	SAN MIGUEL ISLAND
	were sun-worshippers, and the occurrence of these ray-like lines, emanating from a point, met with in their decorations, suggests that they represent the rays of the sun that are in evidence when its face is covered with a cloud—a phenomenon seen frequently on the coast of southern California. In another pendant (pl. CVII, <i>c</i>) the dotted design is quite elaborate. Another specimen (pl. CVII, <i>b</i>) has a secondary perforation owing to the breakage of the one first made, and it is likewise covered with an incised decoration, although simpler than that of <i>c</i>. The shell from which this pendant is made is that of the rock-oyster (<i>Ostrea lurida</i> Carpenter), a shell that, because of its high luster and delicate lavender and purple shades, lent itself admirably to decorative treatment. Other clam-shell pendants (pl. CVIII) exhibit more intricate designs in the dotted decoration, the circular one (<i>a</i>) being especially well ornamented with a star-shaped design. In <i>b</i> may be seen a groove cut over the edge as in the case of pendants before described. It is quite possible that
VII	INDIAN NOTES



SHELL PENDANTS WITH PITTED ORNAMENTATION
(Height of *c*, 3 in.)



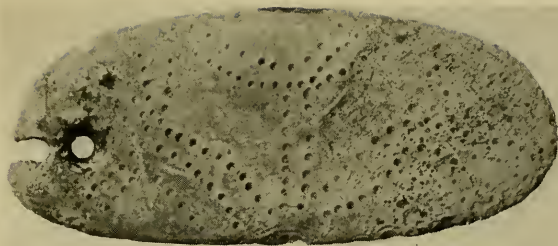
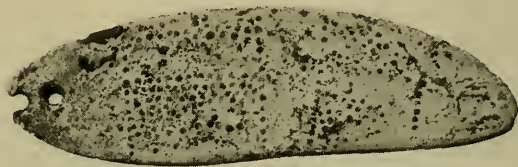
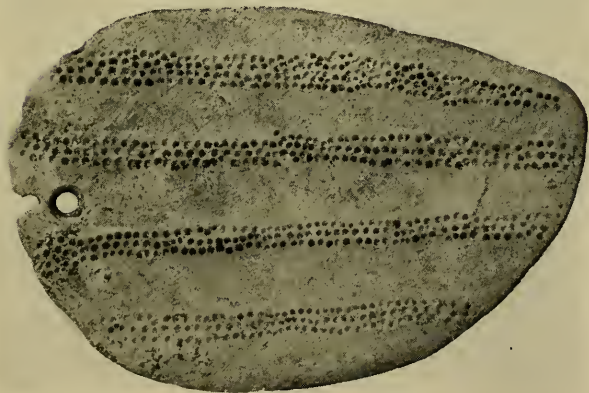
CLAM-SHELL PENDANTS WITH PITTED ORNAMENTATION
(Diameter of *a*, $2\frac{1}{8}$ in.)

similar grooves on other specimens weakened the shell to such an extent that the perforation broke through, for the groove, the broken perforation, and the redrilling are a noticeable feature of three other pendants (pl. cix). In all cases the incised decoration appears on the smoothly ground face of what had been the inner surface of the shell.

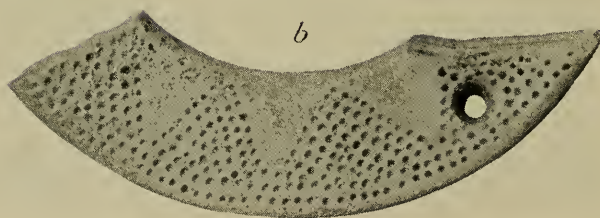
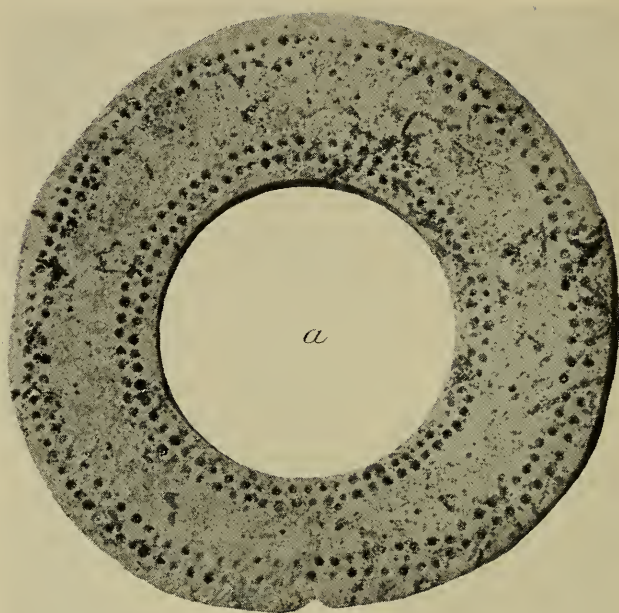
The annular form of clam-shell ornament was met in but two instances (pl. cx), and in one of these (*b*) only a fragment remains. After breakage, a part of this specimen was used as a pendant by drilling a hole near one of the fractured ends, which alone has been smoothed. The dotted design is different in arrangement from that of the complete example (*a*), which is ornamented with four concentric circles of dots, while in the other, the use of the connected triangles produced a stellar design in the entire object. These ring-like forms might readily have served as hair-ornaments in conjunction with the long bone pins already described.

Another object that may have been put

144	SAN MIGUEL ISLAND
	to similar use is the disc, made from the shell of a rock-oyster, presented in pl. CXI, <i>a</i>, which has been ground on the edges and on the rear surface, but only at the place where the perforation appears. On what had been the inner side of the shell there still adheres a considerable quantity of asphaltum, suggesting that it once served as the bedding of a shell inlay. A pendant with three perforations (<i>b</i>), made from a different shell (<i>Lævicardium elatum</i> Sow.), has been smoothed on the edges and upon both surfaces, on one of which the remains of asphaltum from the inlay are still visible. Another specimen, used probably with a bone pin as a hair-ornament, is presented in pl. CXII, <i>a</i>. This also is made of a <i>Lævicardium</i> shell, and is ornamented with rows of small olivella disc-beads mounted in asphaltum, radiating from the aperture and intersected by another row of inlaid beads. Here again the idea of the sun's rays is suggested. The hole is large and oval, and would have enabled the ornament to be held by a bone hair-pin much more firmly than if the opening were circular. A curious feature of
VII	INDIAN NOTES



CLAM-SHELL PENDANTS WITH PITTED DECORATION
(The largest specimen is $3\frac{11}{16}$ in. high)



ANNULAR ORNAMENTS OF CLAM-SHELL WITH PITTED
DECORATION

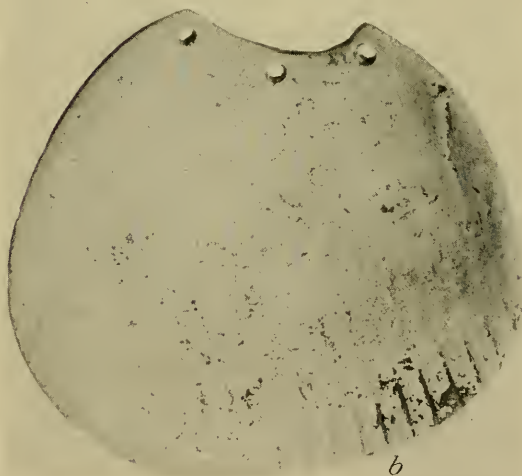
(Maximum diameter of *a*, 3 $\frac{3}{8}$ in.)

HAIR - ORNAMENTS	145
this ornament is the fact that six small holes have been drilled in it, as if for binding a fracture. The pendant has not been broken, however, but it is cracked from the right-hand edge directly under the transverse line of inlay and between the pair of visible perforations, ending just to the left of these. The other four holes are close together, three of them not showing from the side illustrated, as they are beneath the asphaltum. One of the holes is under the shell-disc inlay just above the single visible perforation, while the other pair are to the left of these two and slightly above where the lines of decoration intersect. When found, the object was imbedded in a mass of hematite paint. A similar ornament (pl. CXII, <i>b</i>) has for its base a disc of rock-oyster shell that has been ground smooth on both sides. Its oval opening is highly finished, the edge being carefully smoothed; indeed, much more care was exercised in making it than in finishing the edge of the disc itself. The inlay is of the usual olivella shell discs set in asphaltum. The design consists of eight	
AND MONOGRAPHS	4

146	SAN MIGUEL ISLAND
	straight, ray-like lines of single discs emanating from a double row of similar ones set in a curve passing beneath the oval opening. Pendants made from fragments of shells and the columellæ of small univalves were also used. A very thin one fashioned from a clam-shell and ground on both sides is shown in pl. CXIII, <i>a</i>. Another (<i>c</i>), so small and thin that it could well have been used as an inlay, has been carefully cut from a piece of <i>Lævicardium</i> shell, and its edges smoothed. Pendants made from columellæ of small shells (<i>b</i>) are not numerous. In each instance the perforated end has been ground on both sides and all edges smoothed off, the lower ends being left with their natural points intact. Particles of adhering asphaltum in the grooves lead to the supposition that they had once been ornamented with inlay. Another type of pendant is shown in pl. CXIII, <i>d</i>. In this specimen the top of a columella only has been ground to a point. From the columellæ of various species of shells, cylindrical beads were manufactured. On many of these (pl. CXIII, <i>e-h</i>) the
VII	INDIAN NOTES

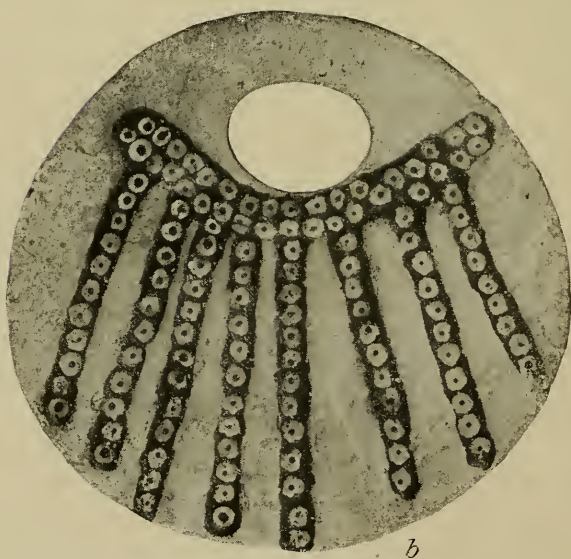
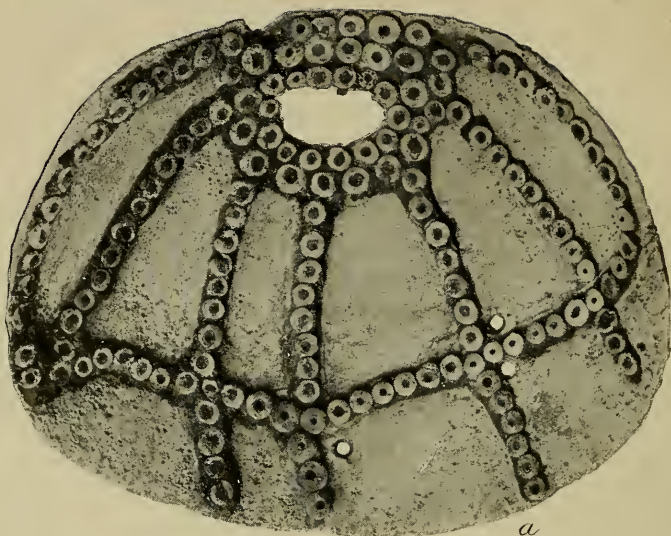


a



b

SHELL ORNAMENTS
(The greater diameter of *a* is $3\frac{1}{2}$ in.)



SHELL ORNAMENTS DECORATED WITH INLAY
(Maximum diameter of *a*, $3\frac{1}{4}$ in.; of *b*, $4\frac{1}{8}$ in.)

whorl still shows plainly, lacking the superior finish of those in fig. 29, which are quite symmetrical. One of the latter (*a*), al-

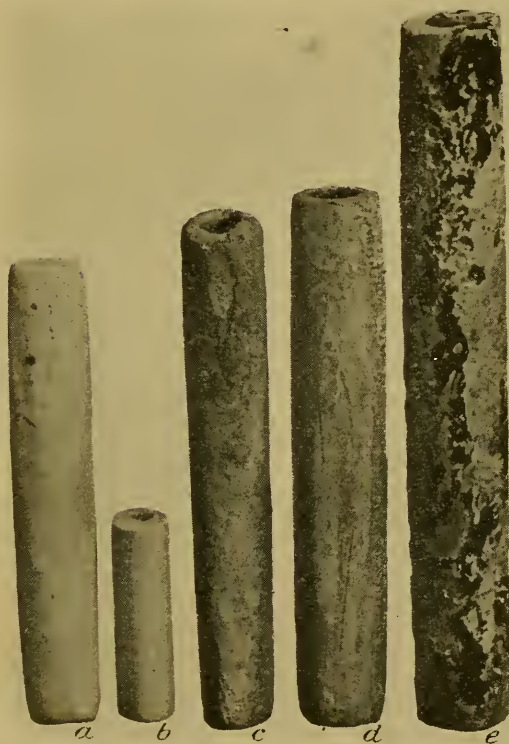
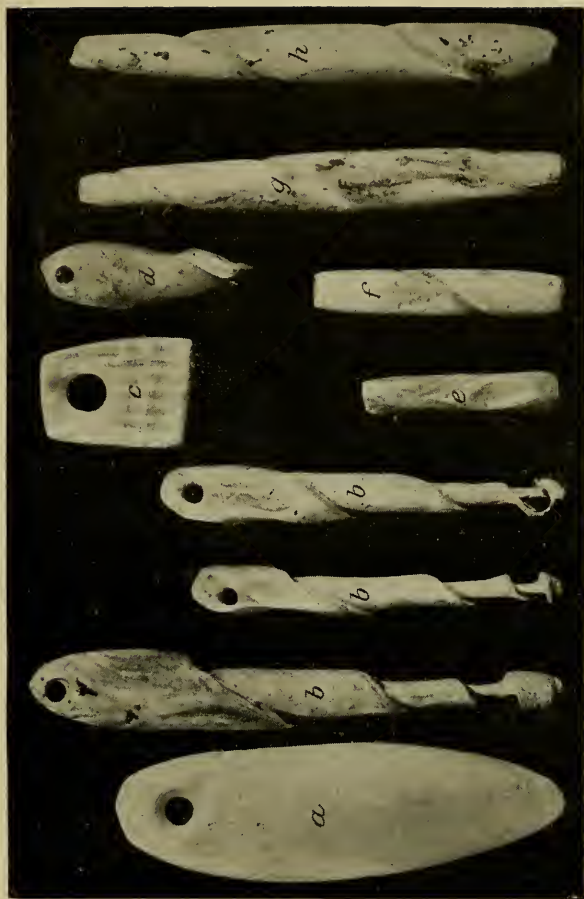


FIG. 29.—Cylindrical beads made from columellæ of various shells. (Length of *b*, 2 in.)

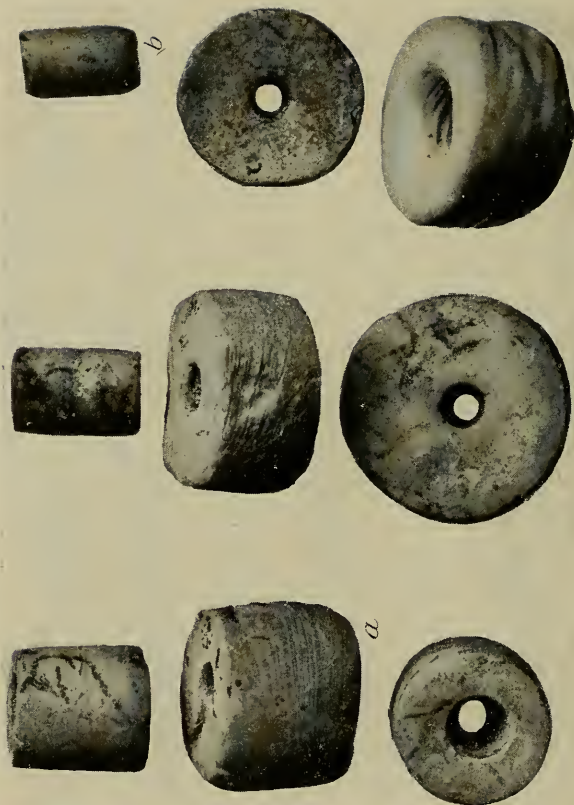
148	SAN MIGUEL ISLAND
	though made as carefully as the others, may be an unfinished example, as it is not perforated, yet one would suppose that the perforation would have been drilled before the body was finished. Beads of varying sizes and shapes, made from many species of shells, are numerous. Those of clam-shell, ranging from thin discs to short, cylindrical beads are illustrated in pl. cxiv. The only feature requiring specific notice is the beveled edge of one of the cylindrical specimens (<i>b</i>). An entirely different type of bead, made also from clam-shell, is large and discoidal, and usually has an incised decoration upon one side (cxv). These range from a quarter of an inch (<i>c</i>) to one inch (<i>b</i>) in thickness (which in the latter specimen is slightly more than its diameter), and have the incised cross-line marginal decoration so common to certain ornaments of <i>haliotis</i>. One of them (<i>a</i>) has in addition a series of lines extending from the perforation to the periphery. It is not alone on the larger disc-beads that incised decoration is found, however, as
VII.	INDIAN NOTES



SHELL PENDANTS AND BEADS
(The second specimen is $1\frac{1}{8}$ in. long)

HEYE—SAN MIGUEL ISLAND

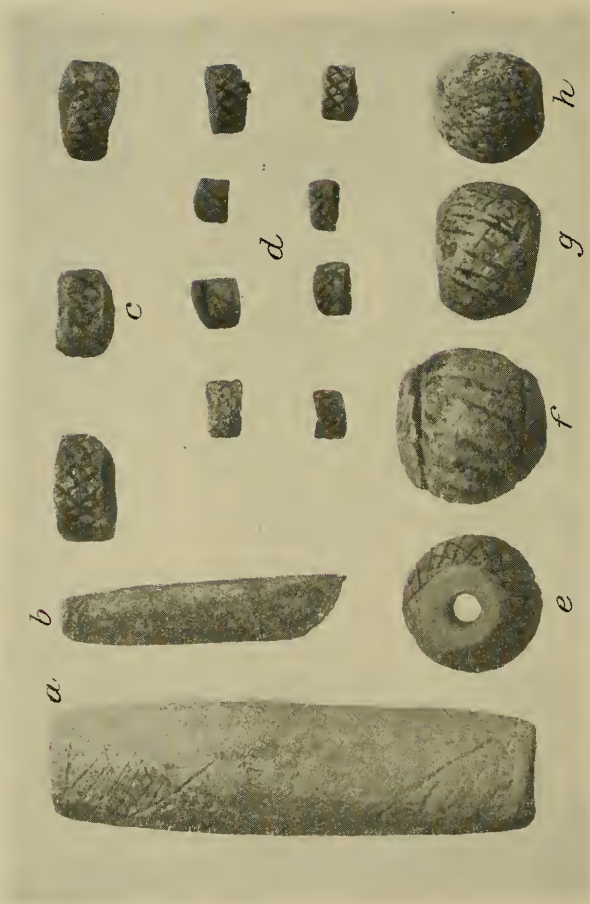
PL. CXIV



BEADS MADE OF CLAM-SHELL
(Height of *a*, one-half inch)



DISCS OF CLAM-SHELL
(Diameter of *d*, $\frac{15}{16}$ in.)



SHELL BEADS WITH INCISED DECORATION
(Length of *a*, $1\frac{3}{8}$ in.)

this feature is present also on certain small ones made from clam-shell (pl. CXVI, *c*), where the incised decoration appears on the rounded edge instead of on the flat surface. Still smaller, similarly decorated beads are made from short sections of dentalium shell (*d*).

Clam-shell beads of other forms with incised decoration include the globular (pl. CXVI, *f-h*), those in the form of a truncated cone (*e*), and the cylindrical (*a*, *b*). The larger of the last kind (*a*) is the only one of this type recovered that bears the triangular motive to which attention has already been directed in connection with certain larger ornaments. Small disc-beads, both finished and in process of manufacture, were also encountered. Perforated mussel-shell blanks (fig. 30, *a*), as well as finished beads of the same material (*b*), are numerous, as also are those made from the pink part (*c*) and the dark-red portions (*d*) of the shell of the spiny oyster (*Spondylus pictorum* Chem.).

The beads most commonly found on San Miguel are those made from *Oliva* or *Olivella*



FIG. 30.—Perforated musselshell blanks (*a*) and finished beads (*b*), and beads made of shell of the spiny oyster. (The larger of specimens *b* is $\frac{7}{8}$ in. in diameter.)

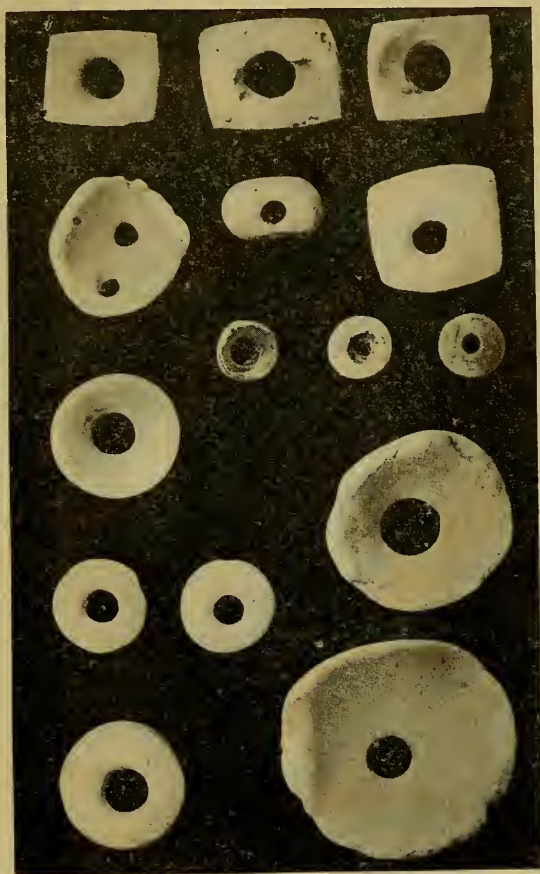
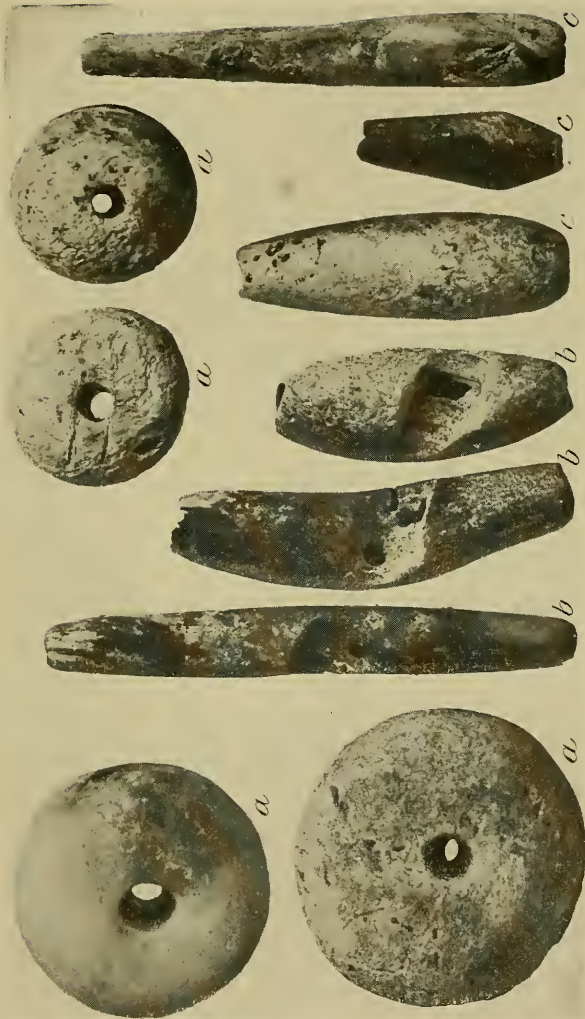


FIG. 31.—Beads made of *Oliva* and *Olivella* shells.
(The largest is $\frac{1}{2}$ in. in diameter.)

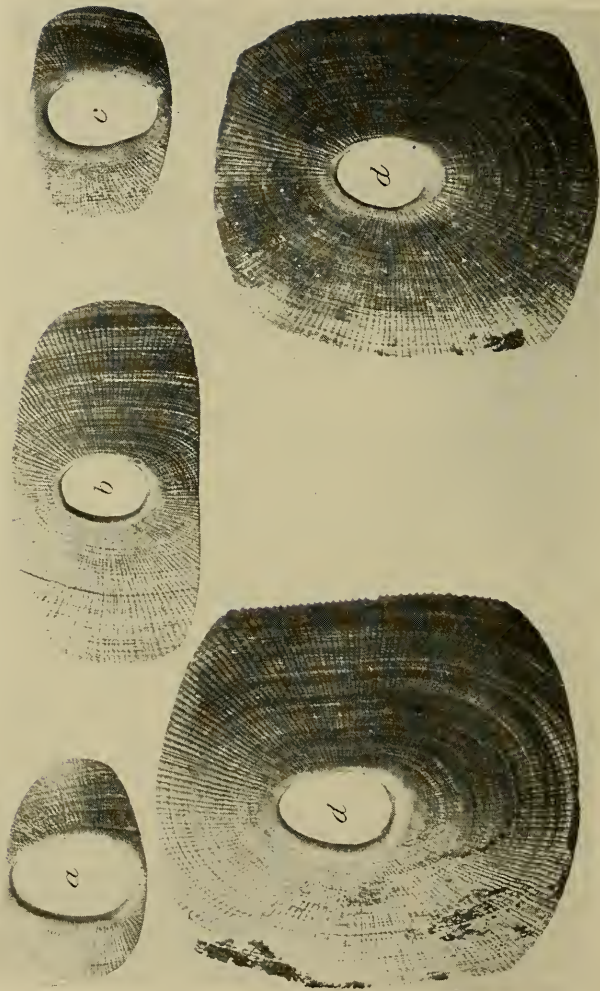
152	SAN MIGUEL ISLAND
	<i>biplacata</i> shells, in a single grave more than six thousand discs of the latter shell having been found. These were used not alone as inlays and as objects of personal adornment, but probably also as the medium of exchange, referred to by the early Spanish voyagers (Burney, 1803, p. 222), with the Indians of the mainland. These beads are not all circular: some of them are oval and some rectangular (fig. 31), the latter being ideal for inlaying. There are a few olivella shell discs doubly perforated, as shown by the one illustrated in the figure, but the reason for this is not known. Beads of rock-oyster shell were rarely found, although their fine coloring, which ranges from light lavender to purple, gives them an attractive appearance. The types recovered are presented in pl. cxvii. The commonest is of a flattened globular form, which occurs in a variety of sizes (<i>a</i>). At the hinge of the rock-oyster there is a decided depression, a feature that was utilized by the Chumash in cutting cylindrical beads from the shell in such a manner that the depression occurs in the center of the
VII	INDIAN NOTES



BEADS MADE FROM SHELLS OF THE ROCK-OYSTER
(Diameter of the largest *a*, $\frac{1}{3}$ in.)

HEYE—SAN MIGUEL ISLAND

PL. CXVIII



ORNAMENTS MADE FROM KEYHOLE LIMPET SHELLS
(Width of the larger, *d*, $2\frac{1}{2}$ in.)

bead (*b*). The drilling of the perforation was then made easier by operating from each end until the natural groove was penetrated.

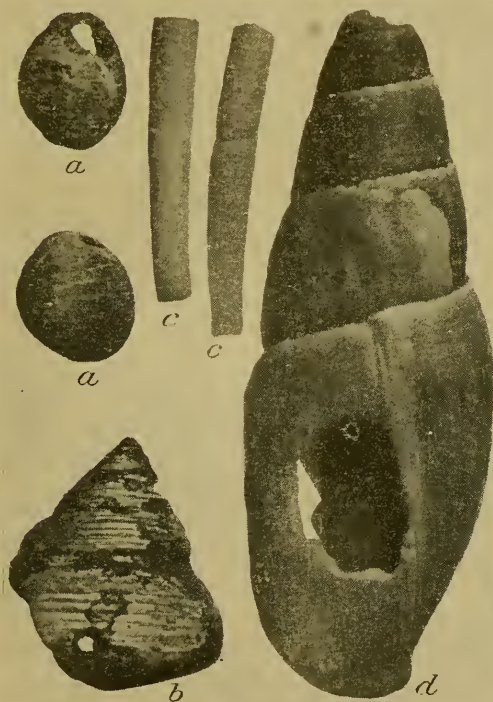
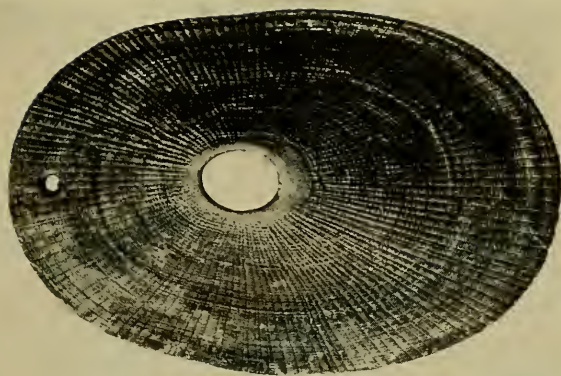
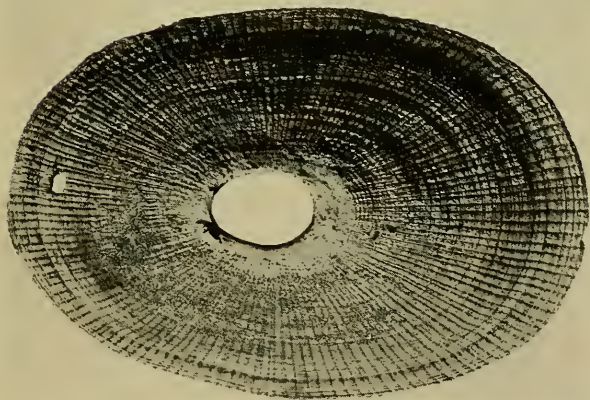
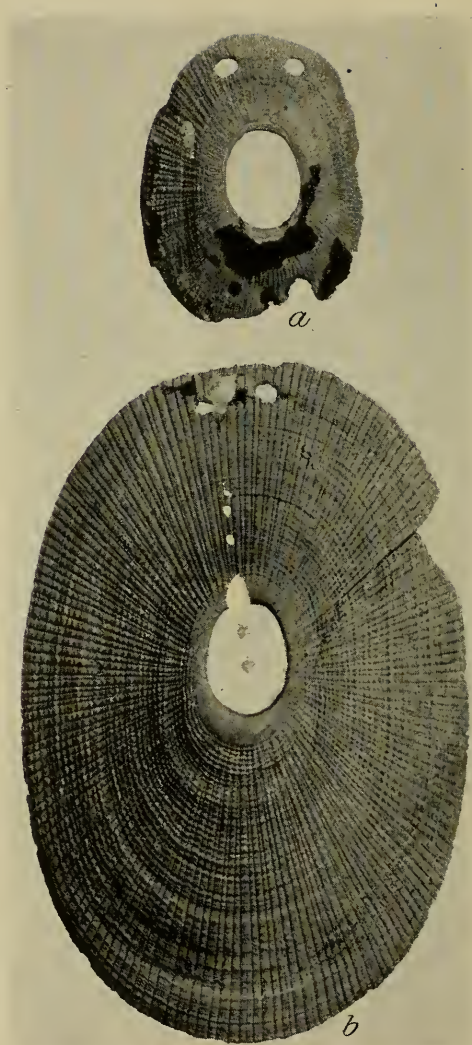


FIG. 32.—Beads and pendants made from entire shells.
(Length of *d*, $1\frac{7}{8}$ in.)

154	SAN MIGUEL ISLAND
	Some of these beads are of barrel shape, while others (<i>c</i>) have their thickest part near one end, one of the latter resembling a double truncated cone with the bases together. Beads made from entire shells were also recovered; these show no modification, except where a hole has been worked as a means of suspension. Unique among them is the one shown in fig. 32, <i>a</i>. So far as ascertainable, this shell (<i>Calliostoma sulcatum</i> Martyn) is not indigenous to San Miguel island, hence it must have been obtained by trade from the southward. A number of pendants of <i>Trivia californica</i> Gray (<i>a</i>) were found, but, strangely enough, very few of dentalium (<i>c</i>). Another unique pendant is a <i>Mitra</i> shell (<i>d</i>) in the sides of which a hole was broken, after which a rather unsuccessful attempt was made to smooth the edges by rubbing. Oliva and olivella shells were not always worked into discs, but were used also as beads by grinding off the points and sometimes both ends to a greater or lesser degree. Examples of beads made by this
VII	INDIAN NOTES



PERFORATED KEYHOLE LIMPET SHELLS
(Length of the larger, $2\frac{1}{2}$ in.)



PERFORATED KEYHOLE LIMPET SHELLS
(Height of *b*, $2\frac{1}{4}$ in.)

simple process are illustrated in fig. 33, *b*, *c*. *Acteon* shells (*a*) were likewise utilized as beads after similar modification.

ORNAMENTS OF KEYHOLE LIMPET SHELLS

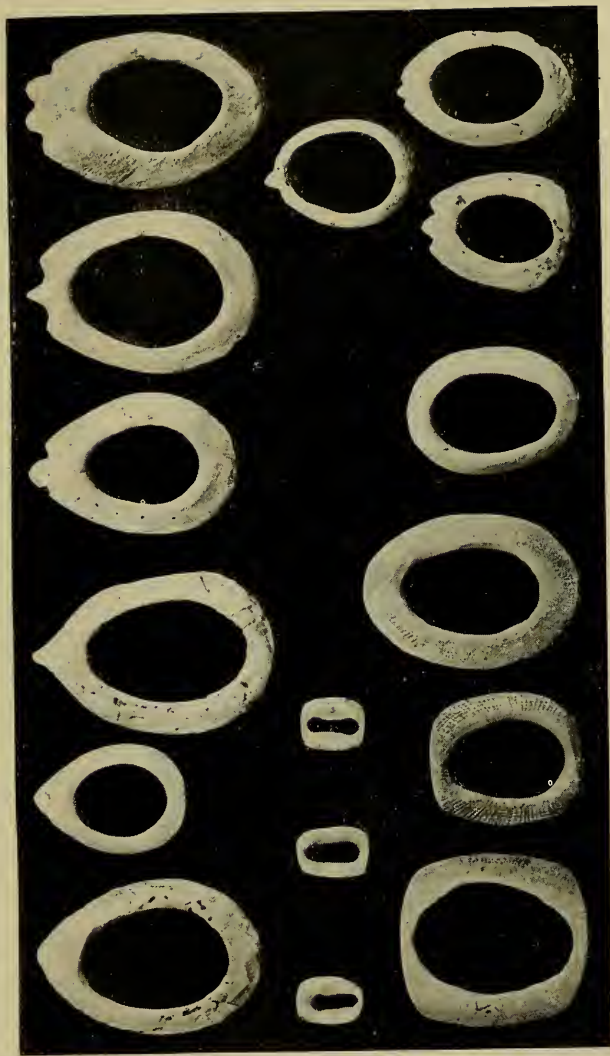
Another variety of shell used extensively by the natives of San Miguel island for decoration is the keyhole limpet (*Lucapina*



FIG. 33.—Beads made by grinding off the points on both ends of univalves.
(The larger ones of *c* are $\frac{11}{16}$ in. long.)

crenulata Sow.). Many specimens of this shell, of varying sizes, have the two opposite ends ground down, sometimes only slightly (pl. CXVIII, *d*), at other times almost to the natural central orifice (*a*, *c*). The

156	SAN MIGUEL ISLAND
	side edges were generally left in their natural state, but in a few instances (<i>a</i>, <i>b</i>) these also have been rounded. Although in the illustration the worked ends of these shells appear to be curved on account of the natural curvature of the shell, they are actually straight, the result of holding the shell firmly in the hand at an angle and rubbing on a hard, flat surface. Crossing a skeleton from shoulder to shoulder were seventeen of the larger key-hole limpet shells, measuring from 2 in. to 2½ in. in length between the two cut edges, similar to those shown in pl. CXVIII, <i>d</i>. No hematite paint was found in the grave, but two of the accompanying limpet shells were centrally painted red and were further ornamented with spots of white paint arranged in lines radiating from the natural orifice of the shell, again suggesting the rays of the sun. The frontispiece illustrates one of these two specimens. The painting of the other has been partially obliterated, but enough remains to show that it was similar to the one illustrated. The other shells found in the grave bear no trace of paint.
VII	INDIAN NOTES



INLAIS MADE FROM KEYHOLE LIMPET SHELLS
(The height of the third specimen in the upper row is $1\frac{1}{2}$ in.)



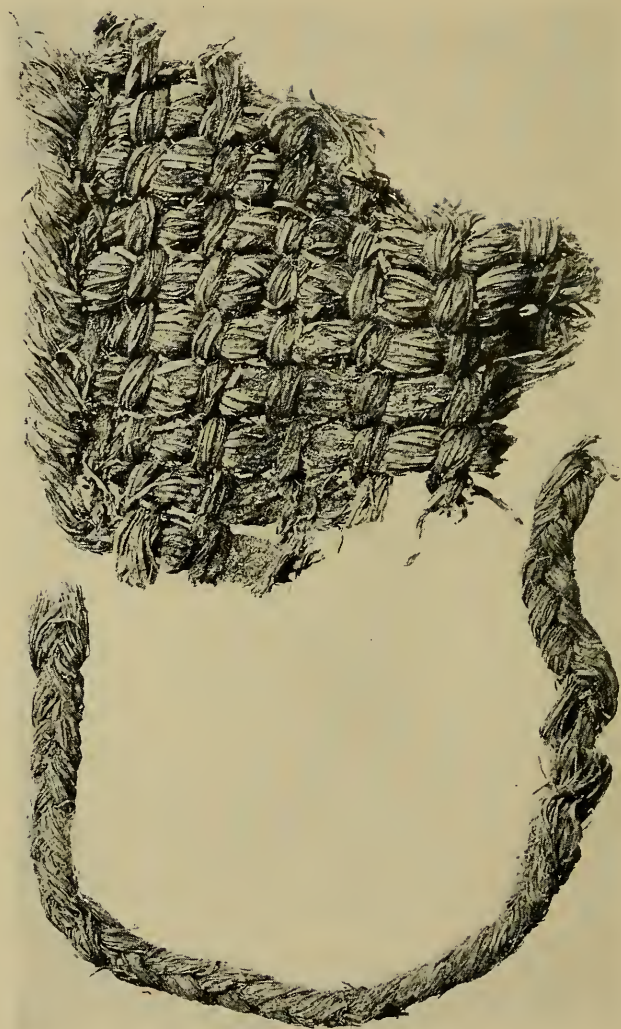
SHELL INLAYS ON ASPHALTUM
(Maximum diameter of the shell of *a*, $1\frac{1}{8}$ in.)

SHELL INLAYS	157
These large keyhole limpet shells were used also as pendants without having been ground on the edges or modified in any other way, with the exception of drilling a hole or holes near the edge at one end (pl. CXIX). Those with two perforations (pl. CXX, <i>b</i>) are rare; and in only one instance, that of a much smaller shell (<i>a</i>), are holes present at both ends. There are numerous inlays of several forms (pl. CXXI), made by grinding away the keyhole limpet shell close to its natural orifice and then finishing to the desired shape, sometimes with straight edges, sometimes oval in outline, elaborated in some examples with notches or with small projections. Although none of these inlays was found on an object, several contain asphaltum in which are set disc-beads made from olivella shells (pl. CXXII, <i>b</i>). INLAID HAIR-ORNAMENT Other shell inlays in asphaltum are presented in the same plate. In <i>a</i> is seen a large mass of asphaltum shaped to fit rudely	
AND MONOGRAPHS	4

158	SAN MIGUEL ISLAND
	a haliotis-shell disc centrally perforated and placed on the end. Protruding from the asphaltum at the opposite end is a fractured bone. It is impossible to determine whether this imperfect object is part of an implement or of a pin; but probably it is the latter, for it might well have served as a hair-ornament, since the disc is set at a considerable angle to the axis of the bone, in such manner that, had the pin been thrust in the hair, the ornamental head would still have been plainly visible. INLAID HANDLES Fragments of asphaltum tool-handles inlaid with entire olivella shells and fragments were found (pl. CXXII, <i>c, d</i>), but unfortunately there is no complete example. A similar object is illustrated by Putnam (1879, fig. 125). WOVEN MATERIALS As before stated, a few skeletons were found with traces of basketry hats on the skulls, but unfortunately they disintegrated immediately on exposure to the air.
VII	INDIAN NOTES



FRAGMENT OF SEA-GRASS APRON
(Entire length, 7 in.)



FRAGMENT OF GRASS APRON AND OF A BRAIDED
TIE-STRING

(The left edge of the apron fragment is 4 in.)

FABRICS	159
On certain skeletons also were aprons of woven grass, fragments of which were preserved. Pl. CXXIII shows the end of one of these with a braided warp and twisted tie-string. They are all of the same weave (pl. CXXIV), but, as shown in the illustration, sometimes the tie-string is braided instead of twisted. INTRUSIVE OBJECTS The only objects not of native origin found by the expedition were some glass beads, with one exception found on the camp-sites. From a single grave were taken fifty-one small glass beads—light-blue, dark-blue, yellow, white, and red—and also a larger dark-blue one of barrel shape. No trace of iron, not even a rust stain, was observed. SUMMARY The results of the Mrs. Thea Heye Expedition, conducted as it was after San Miguel island had been more or less archeologically explored and so many aboriginal objects	
AND MONOGRAPHS	4

160	SAN MIGUEL ISLAND
	gathered, were necessarily incomplete. When it is realized that Schumacher uncovered about two hundred and fifty skeletons during four days in 1875, and that numerous others have dug in the limited area of the island, it is remarkable that it was still possible to unearth so many as three hundred and forty-three skeletons, especially as every burial-site, except those where solitary interments were found, had previously been more or less disturbed. So little is yet generally known of the Chumash Indians that many questions concerning them must remain unanswered at present. It is strange that these natives devoted so much attention to the burial of children, for their remains were accompanied with what must have been the most valued possessions of the islanders. The numerous and varied shell objects raise interesting conjectures respecting their uses. Unfortunately there were no remains of skin or fur clothing by which this question might be answered definitely; nor has any information regarding the native garments been
VII	INDIAN NOTES

S U M M A R Y	161
recorded, so far as our study of early accounts has revealed. Another debatable point pertains to the hair-ornaments. It is known from the accounts of early voyagers that the Indians of the Santa Barbara islands adorned their hair with many and varied ornaments, some of which glistened, as would have been the case with those decorated with crystals or with shells of the haliotis or the rock-oyster. It is even probable that the more elaborate ornaments made from clam-shells and other bivalves became lustrous from everyday use. Many of the bone pins were found back of or close to the skulls, as were also some of the larger shell ornaments, indicating that they were used in connection with hair-dressing. Positive knowledge respecting the use of the shell hooks would be of value, for it seems improbable that these should have been used for fishing, when at best only small fish could have been caught with them, whereas large ones abounded in the waters of the Santa Barbara channel. Moreover, a hook of requisite size could	
A N D M O N O G R A P H S	4

162	SAN MIGUEL ISLAND
	have been made more easily and more effectually by lashing two bones together. If, on the other hand, the shell hooks were designed to adorn articles of apparel, being tied with cords, what was hung on them? Comparatively few of the numerous shell ornaments found would have fitted over their points. Could they have been used as fetishes or charms for insuring success in fishing, and if so, was a part of a fish impaled on them to increase their potency? The ancient inhabitants of San Miguel were not workers in stone to any particular extent. No steatite is found in place on the island, and no workshop or refuse from stoneworking to any degree has been found. It is probable that the majority of their stone objects were obtained by barter from neighboring islanders south of them. Again, as in all archeological work in this general region, the problem of the perforated stones arises. These could have been and probably were used for a variety of purposes, for the Indian does not lack individuality in the use of even simple objects. As an instance of this, the writer once met an
VII	INDIAN NOTES

SUMMARY	163
Indian who exhibited some of the contents of his work-bag, among which were some of the common type of bone implements known as awls. These were of different sizes, and on being asked in regard to the use of the various kinds, the owner explained how he used them, and on reaching the smaller ones he demonstrated the fact that they were used as toothpicks! The Chumash exhibited considerable dexterity in fashioning bone and shell to suit their esthetic taste, and this seems to have been their chief industry. The supply of shell was inexhaustible, and asphaltum, which was used so extensively for inlaying, was to be had from the well at Wescott shoal, almost at their very doors. The bones of cetaceans and of sea-lions were also abundantly supplied by the nearby waters, and many varieties of birds are still to be seen on and about the Channel islands. Therefore the only animal whose bone the natives employed to any extent and which must have been procured by barter, was that of the deer. In the case of the long pins for which deer-bone was commonly utilized,	
AND MONOGRAPHS	4

164	SAN MIGUEL ISLAND
	we have seen that in some instances human bones were substituted; but the question whether these were worn as trophies remains unanswered. The very life of the Chumash of San Miguel depended on their ability to leave their limited domain at will, and the description by early voyagers of their well-built canoes with their long paddles, so skilfully and powerfully used, leaves no doubt as to their means of communication with adjacent islands and the mainland. It is therefore to be regretted that no example of the only means of transportation which the islanders possessed has been found.
VII	INDIAN NOTES

BIBLIOGRAPHY

PREPARED BY PROFESSOR FREDERICK J. TEG-
GART, OF THE UNIVERSITY OF CALIFORNIA*

1542

(1) RELACION, 6 diario, de la navegacion que hizo Juan Rodriguez Cabrillo con dos navios, al descubrimiento del paso del Mar del Sur al norte, desde 27 de Junio de 1542 . . . hasta 14 de Abril del siguiente año. . . .

In [Smith, Thomas Buckingham, *ed.*] Coleccion de varios documentos para la historia de la Florida y tierras adyacentes. Tomo I. Londres, [1857]. pp. 173-189.

(2) RELACION del descubrimiento que hizo Juan Rodriguez, navegando por la contracosta del Mar del Sur al Norte, hecha por Juan Paez. (Julio de 1542.)

In Coleccion de documentos inéditos relativos al descubrimiento, conquista y organizacion de las antiguas posesiones españolas de América y Oceanía . . . Tomo xiv. Madrid, 1870. pp. 165-191.

Same as the preceding, printed from another copy of the original.

(3) TRANSLATION [by Richard Stuart Evans] from the Spanish of the account by the pilot Ferrel of the voyage of Cabrillo along the west coast of North America in 1542. With introductory notes by H. W. Henshaw.

*The titles of a few additional works referred to in the text have been added by the author.

In U. S. Army—Engineer department. Report upon United States geographical surveys west of the one hun-

dredth meridian, in charge of First Lieut. Geo. M. Wheeler.
 . . . Vol. VII. Archæology. Washington, 1879.
 Appendix, pp. 293-314.

(4) RELATION of the voyage of Juan Rodríguez Cabrillo, 1542-1543.

In Original narratives of early American history. Spanish exploration in the Southwest: 1542-1706. Edited by Herbert Eugene Bolton. New York, 1916. pp. 13-39.

"On Wednesday, the 18th of the said month [October, 1542], they proceeded along the coast until ten o'clock, seeing that all the coast was populated; and because there was a fresh wind and canoes did not come to them, they drew near to a headland which forms a cape like a galley, and named it Cape Galera [Point Concepción]. It is in thirty-six degrees, full. And because a strong northwest wind struck them they stood off shore and discovered two islands, one large [Santa Rosa], probably about eight leagues long from east to west, the other [San Miguel] about four leagues. They are inhabited, and in this small one there is a good port [Cuyler's harbor]. They are ten leagues from the mainland. They are called the Islands of San Lucas. They remained in these islands until the following Wednesday because it was very stormy.

On Wednesday, the 25th of the said month, they left these islands, setting out from the one which was most to windward. It has a very good port, which within gives shelter from all storms of the sea. They called it La Posesion. . . . pp. 27-28.

"On Thursday, the 23d of the month [November], they arrived, on the return, in the islands of San Lucas, at one of them called La Posesion. . . .

Passing the winter on the island of La Posesion, on the 3d of the month of January, 1543, Juan Rodríguez Cabrillo, captain of the said ships, departed from this life, as the result of a fall which he suffered on said island when they were there before, from which he broke an arm near the shoulder. He left as captain the chief pilot, who was one Bartolome Ferrelo, a native of the Levant. At the time of his death he emphatically charged them not to leave off exploring as much as possible of all that coast. They named the island the Island of Juan Rodríguez. The Indians call it Ciquimuymu; the next they call Nicalque, and the next, Limu. On this island of La Posesion there are two pueblos, one called Zaco and the other Nimollollo. On the next island there are three pueblos, one called Ni-

chochi, another Coycoy, and another Estocoloco. On the third island there are eight pueblos, namely, Niquésesselua, Poele, Pisqueno, Pualnacatup, Patiquiu, Patiquilid, Ninumu, Muoc, Pilidquay, and Lilibegue.

The Indians of these islands are very poor. They are fishermen, and they eat nothing except fish. They sleep on the ground. Their sole business and employment is fishing. They say that in each house there are fifty persons. They live very swinishly, and go about naked.

They remained on these islands from the 23d of November till the 19th of January. During all this time, which was nearly two months, there were very heavy winter winds and rains. The prevailing winds were west-southwest, south-southwest, and west-northwest. There were very violent winds.

On Friday, the 19th of the said month of January, 1543, they set sail from the island of Juan Rodriguez, which is called Ciquimuymu, to go to the mainland in search of some provisions for their voyage. . . .” [Continues with an account of their difficulties in getting away from the islands.] pp. 33-34.

“On Monday, the 5th of the month of March, 1543, in the morning, they found themselves at the island of Juan Rodriguez, but they did not dare enter the port because of the high tempest which caused breakers at its entrance in fifteen fathoms. The wind was from the north-northwest. The entrance is narrow. They ran to shelter under the island of San Salvador [Santa Cruz] on the southeast side. . . .” pp. 37-38.

See also DAVIDSON, George (1886); HOLDER, Charles Frederick (1910).

1602

RELACION breve en que se dá noticia del descubrimiento que se hizo en la Nueva-España, en la mar del Sur, desde el puerto de Acapulco hasta más adelante del cabo Mendocino; en que se dá cuenta de las riquezas y buen temple y comodidades del reino de Californias, y de cómo podrá S. M. á poca costa pacificable y incorporable en su Real Corona, y hacer que en él se predique el santo Evangelio, por el padre Fr. Antonio de la Ascension, religioso carmelita

descalzo que se halló en él, y como cosmógrafo lo demarcó.

In Coleccion de documentos inéditos relativos al descubrimiento, conquista y organizacion de las antiguas posesiones españolas de América y Oceanía. Tomo viii. Madrid, 1867. pp. 539-574.

This *Colección* is sometimes referred to as by Joaquín F. Pacheco and Francisco de Cárdenas.

CARRASCO Y GUIASOLA, Francisco, *ed.* Documentos referentes al reconocimiento de las costas de las Californias desde el Cabo de San Lucas al de Mendocino, recopiladas en el Archivo de Indias. Madrid, Dirección de Hidrografía, 1882-1883. 2 pts. pp. 214.

See more particularly:

Reseña del descubrimiento y demarcacion de las costas de Californias desde el cabo de S. Lucas al Mendocino, por Sebastian Vizcaino, 1602. (Documento núm. 28.) pp. 68-107. Cf. Capítulo 13. De la salida de la ysla de Santa Catalina y llegada al puerto de Monterrey. pp. 95-98.

Copia del libro [diario] llevado por Sebastian Vizcaino durante el descubrimiento y demarcacion de las costas del Mar del Sur, desde el puerto de Acapulco al cabo Mendocino, en 1602. (Documento núm. 29.) pp. 109-148.

Derrotero de la navegacion desde el puerto de acap^{co}. al cabo mendocino y boca de las Californias fecho por el capⁿ. geronimo Mm. [Martin] Palacios cosmógrafo mayor (Documento núm. 30.) pp. 149-172.

Explicacion que acompaña á cada una de las vistas de costa y planos de este derrotero. 1603. pp. 172-182.

See PALACIOS, Gerónimo Martin (1603).

DIARY of Sebastian Vizcaino, 1602-1603.

In Original narratives of early American history. Spanish exploration in the Southwest: 1542-1706. Edited by Herbert Eugene Bolton. New York, 1916. pp. 52-103.

Does not mention San Miguel island. Of the Indians in the Santa Barbara channel he says: "So we went on skirting the coast, and on Monday, the 2d of the said month [December] we sighted two other large islands. Passing between the first and the mainland, a canoe came out to us with two Indian fishermen, who had a great quantity of fish, rowing so swiftly that they seemed to fly. . . .

After they had gone five Indians came in another canoe, so well constructed and built that since Noah's Ark a finer and lighter vessel with timbers better made has not been seen. Four men rowed, with an old man in the centre, singing as in a *mitote* of the Indians of New Spain, and the others responding to him. . . . Only the old man spoke, . . . This Indian was so intelligent that he appeared to be not a barbarian but a person of great understanding. . . ." pp. 87-88.

A BRIEF report of the discovery in the South Sea, by Fray Antonio de la Ascensión, 1602-1603.

In Original narratives of early American history. Spanish exploration in the Southwest: 1542-1706. Edited by Herbert Eugene Bolton. New York, 1916. pp. 104-134.

1603

PALACIOS, Gerónimo Martin. Explicacion que acompaña á cada una de las vistas de costa y planos de este derrotero. 1603.

In Carrasco y Guisasola, Francisco, *ed.* Documentos referentes al reconocimiento de las costas de las Californias desde el Cabo de San Lucas al de Mendocino, recopiladas en el Archivo de Indias. Madrid, 1882-1883. pp. 172-182.

Explicacion—

Vista núm. 26. Desde la punta de arboleda núm. 39 hasta el núm. 40 es la costa de yslas como señalada. la oja, y la ysla rasa de buena gente está dentro de una ensenada y muy serca de la tierra firme. Tiene mucha gente buena. Ocho leguas al sur de esta ysla está la ysla de Santa catalina, que es muy grande, como ba señalada. Tiene á la parte del nordeste buenos surgideros y un puerto muy abrigado con dos farallones á la boca, se puede entrar por calquier parte de ellos seguramente, esta en altura de 34° y medio, en lo demas tocante á esta ysla me remito al derrotero, al norueste de esta ysla estan la de Santa Baruara y de san nicolas, y son pobladas y todas muy seguras de bajos y en la misma altura.

Vista núm. 27. Desde la punta de rio dulce, núm. 41, hasta el núm. 42, corre la costa de norueste-sueste quarta al este-veste. Toda la tierra de mucha arboleda. La costa muy segura sin ningun rio, puerto ni ensenada, muy

170	SAN MIGUEL ISLAND
	poblada de gente y las tres yslas que se ben en la hoja son como ban señaladas, muy pobladas de gente barbuda, morena, diferente de las demas gente de las otras yslas, son muy seguras de todo genero de bajos y en lo demas me remito al derrotero. Vista núm. 28. Desde el núm. 43 hasta la punta de la limpia concepcion que sigue á la hoja de atras, Tiene á la parte del norueste de ella dos farallones chiquitos y entre ellos vnas bajos que todo sera de una legua y la ysla de san gregorio esta en la hoja de atras. pp. 180-181. 1615 HERRERA Y TORDESILLAS, Antonio de. Historia general de los hechos de los castellanos en las islas y tierra firme del mar oceano. Decada setima. Madrid, [1615.] ——— <i>Same.</i> Madrid, 1730. Libro V. Capitulo III. Del viage, que hizieron dos nauios, que embio don Antonio de Mendoça a descubrir la costa de la mar del Sur, desde neuua España. pp. 112-113. (1730 ed., pp. 89-90.) Capitulo IIII. Que prosigue el descubrimiento de los dos nauios de don Antonio de Mendoça por la mar del Sur. pp. 114-115. (1730 ed., pp. 90-91.) “ y descubrieron dos Islas, la vna de ocho leguas de costa Leste Oeste, y la otra quatro, en esta descubrieron vn puerto pequeño muy bueno, hallaròlas muy pobladas: y esta gente, y toda la de la costa de atras viue de pesquerias, y hazer cuentas de huessos de pescados, para rescatar con la gente de la tierra firme, y estaran diez leguas del Cabo de la Galera, correse Oeste, quarta al Norueste. En ocho dias, q en este puerto estuuieron, fueron bien tratados de los Indios, los quales andá desnudos, y traen las caras pintadas, a manera de axedrez, y a este puerto llamaron de la Posesion.” p. 113, (1730 ed., p. 89.) 1629 ZÁRATE SALMERÓN, Gerónimo de. Jornada de Sebastian Vizcaino al Cabo Mendocino. <i>In his</i> Relaciones de todas las cosas que en el Nuevo Mexico se han visto y sabido, desde el año de 1538 hasta el de 1626. . . . pp. 14-23. <i>In</i> Documentos
VII	INDIAN NOTES

para la historia de Mexico. Tercera série. Mexico, 1856.
Vol. II, pp. 1-112.

1723

TORQUEMADA, Juan de. Primera parte de los
viente i un libros rituales i monarchia indiana . . .
Madrid, 1723.

Libro quinto. Cap. XLV. Donde se dà principio à la
jornada, que Sebastian Vizcaino hiço, por este Mar del
Sùr, y del intento, que huvo para hacerse el viage, y jor-
nada del Cabo Mendocino, esta quinta vez, que fue à
descubrirse. pp. 693-725.

Libro quinto. Cap. LIII. En que se trata de lo que le
sucedìo à esta Armada, desde que saliò de el Puerto de San
Diego, hasta llegar al Puerto de Monte-Rey. pp. 711-715.

Reprinted in:

[BURRIEL, Andres Marcos.] Noticia de la California,
y de su conquista temporal, y espiritual, hasta el tiempo
presente, sacada de la Historia Manuscrita, formada en
Mexico año de 1739. por el Padre Miguèl Venegas, . . .
Tomo Tercero. Madrid, 1757. Appendice II. pp. 22-139.

Cap. LIII. pp. 89-101.

Also in:

— A natural and civil history of California
. . . . Translated from the original Spanish of Miguel
Venegas, . . . Vol. II. London, 1759. pp. 227-308.

Other translations were made into Dutch (1761-1762),
French (1767), German (1769).

The account of the voyage of Vizcaino from Torque-
mada translated into English, was printed in:

U. S. House of Repr. 25th Congress, 3d session.
Report 101, Jan. 4, 1839. Appendix D, pp. 37-41.

This item I have been unable to see. I presume that
it is a reprint of the English version of Venegas.

1734

GONZALEZ CABRERA BUENO, IOSEPH. Nav-
egacion especulativa, y práctica. Manila, 1734.

Parte quinta. Capit. iv. Derrota desde el Cabo de
Mendocino, hasta el Puerto de Acapulco por la Costa.
pp. 302-313.

Cf. pp. 304-305:

“ . . . vna Punta de tierra baxa pelada, que esta
en 35. grados y medio, y se llama la Punta de la Concep-

172	SAN MIGUEL ISLAND
	cion, y de esta Punta a delante, corre la Costa de Leste, Oeste y la quarta del Norueste, Sueste, mas de 25. leguas y tierra gruessa; en el medio de este Camino ay mucha Arboleda en lo alto de la tierra hasta la mar; y al Sueste de està Punta, cosa de ocho leguas, està vna Isla mediana, que tendrà tres leguas en redondo, con dos otros piedràs, y vn Farallon de la parte del Nornorueste de ella, mas de vna legua, en el qual Farallon, ay muchos Lobos. y por eso se llama Farallon de Lobos; de la Isla dicha a la parte del Leste, estàn otras Islas mas grandes, en Cordillera vnas con otras, y la que està mas al Leste es la mas grande de todas, y mas alta y tendida de Norueste, Sueste, con tres Farallones, de la parte de Leste, apartados de la Isla, mas de vna legua y media; todas estas Islas, son muy pobladas de gente amiga de Españoles vsan de Embarcaciones pequeñas, al modo de las Islas de los Ladrones, excepto que no tienen Velas, tendràn estas Islas de longitud, mas de veinte leguas, y entre ellas y la tierra firme, ay muy bien pasaje, y seguro; y se llama la Canal de Santa Barbara. . . . la Punta de la Conversion, y està en altura de 35. grados; advierto q̄ el que viniere del Cabo Mendocino, por Derrota à buscar esta Canal, se pondrà seis leguas à la mar del dicho Cabo, y por el Sueste quarta al Sur, vendrà à dar à la Canal dicha de Santa Barbara, siempre à vista de tierra de la Punta de la Conversion, se vâ costeano la Costa al Leste mas de diez leguas de tierra aspera, y doblada à la mar, y vâ haziendo la Costa vna Ensenada de tierra baxa, cerca de la mar, y sin abrigo, ni raparo de la Isla vltima de las quatro Islas dichas, al Sudueste quarta del Sur, està vn Islote pequeño. Norte Sur quarta del Nordeste, y Sudueste, con la Punta de la Conversion, y al Leste de el cosa de cinco leguas, està vna Isla pequeña y alta, que tendrà tres leguas de contorno que se llama de Santa Barbara; al Leste de esta Isla mas dê ocho leguas, està otra Isla grande y alta que tendrà de contorno mas de veinte leguas, y lo mas largo de ella, es de Norueste, Sueste; tiene està Isla muchos reparos por la parte del Nordeste para abrigo de los vientos de la mar, y està muy poblada de gente amiga, y el medio de ella està en altura 34. grados y medio, y se llama la Isla de Santa Cathalina; àl Sur quarta àl Sueste de està Isla, cosa de dos leguas, està una grande y muy alta que se llama de S. Clemente, està en altura de 34. grados escasos," pp. 304-305
VII	INDIAN NOTES

BIBLIOGRAPHY	173
1757 BURRIEL, Andres Marcos. <i>See</i> TORQUEMADA (1723). 1769 (1) COSTANSÓ, Miguel. Diario historico de los viages de mar, y tierra hechos al Norte de la California . . . Executados por la tropa destinada à dicho objeto al mando de Don Gaspar de Portola . . . Y por los paquebots el S. Carlos, y el S. Antonio al mando de Don Vicente Vila . . . Mexico, 1770. pp. 56. (2) [———] An historical journal of the expeditions, by sea and land, to the North of California; in 1768, 1769, and 1770: when Spanish establishments were first made at San-Diego and Monte-Rey. Translated by William Reveley. London, 1790. pp. 76. (3) [———] Early California history. The expeditions of 1769. <i>Land of Sunshine</i>, 14 (Los Angeles, Cal., 1901). 485-496; 15 (1901), 38-47. (4) ——— The narrative of the Portolá expedition of 1769-1770 by Miguel Costansó. Edited by Adolph van Hemert-Engert and Frederick J. Teggart. Berkeley, 1910. Publications of the Academy of Pacific Coast History. Vol. 1, no. 4, pp. 91-159. A general description of the Indians of the Santa Barbara channel is given, pp. 132-140. A brief vocabulary, p. 140. (5) ——— The Portolá expedition of 1769-1770. Diary of Miguel Costansó. Edited by Frederick J. Teggart. Berkeley, 1911.	
AND MONOGRAPHS	4

174	SAN MIGUEL ISLAND
	Publications of the Academy of Pacific Coast History. Vol. 2, no. 4, pp. 161-327. Thursday, August 24, 1769. ". . . From this place, which we named San Luis Rey, we discovered, in the afternoon, the three last islands of the Canal de Santa Bárbara. These are San Bernardo, the most westerly; then Santa Cruz, to the east; and Santa Bárbara, the most easterly of the three, which gave its name to the stretch of sea and coast about which we are speaking. . . ." p. 207. Thursday, January 4, 1770. ". . . The island of San Bernardo, in the language of the natives, is called <i>Thoa</i>; that of Santa Cruz is called <i>Lotolic</i>; that of Santa Bárbara, <i>Anajup</i>." p. 309. Compare the map of California by Costansó, given facing title-page. CRESPI, <i>Fr. Juan</i>. Copia del diario y caminata que hizo la expedicion desde el puerto de San Diego de Alcalá hasta el de Monterey, saliendo el 14 de Julio de 1769. <i>In</i> Paloú, <i>Fr. Francisco</i>. Noticias de la Nueva California. <i>In</i> Documentos para la historia de Mexico, Cuarta série, Tomo VI. Mexico, 1857. pp. 284-501. <i>Also in</i> Tomo II. San Francisco, 1874. (California Historical Society's Publication.) pp. 100-244. August 24, 1769: ". . . Un gentil de este pueblo á quien los soldados llaman el loco, muy bailarín, se nos aficionó de tal manera que nos viene siguiendo y nos sirve de mucho y servirá para las otras rancherías; desde este paraje vimos por la tarde las tres últimas islas de la canal de Santa Bárbara, que son San Bernardo la mas occidental, Santa Cruz que sigue para Levante y Santa Bárbara es la mas oriental; tienen los indios de este pueblo siete canoas que están pescando; algunas de ellas son bien grandes." p. 326. (1874 ed., pp. 147-148. VILA, Vicente. The Portolá expedition of 1769-1770. Diary of Vicente Vila. Edited by Robert Selden Rose. Berkeley, 1911. Publications of the Academy of Pacific Coast History. Vol. 2, no. 1. No description of the islands, which were passed April 26, 1769.
VII	INDIAN NOTES

1775

FAGES, Pedro. Voyage en Californie . . .
traduit de l'espagnol sur le manuscrit inédit de
la bibliothèque de M. Ternaux-Compans.

Nouvelles annales des voyages et des sciences géographiques,
101 (Paris, 1844), 145-182, 311-347.

The earliest detailed description of the Indians of Cali-
fornia. The Spanish document has not been printed.

1798

VANCOUVER, George. A voyage of discovery
to the North Pacific Ocean, and round the
world. . . . Vol. II. London, 1798.

"1793 November [9]

" . . . the westernmost, or first island, forming
the canal of St^a Barbara, called in one of the Spanish charts
St. Miguel, in the other St. Barnardo, (the former of which
I have adopted) bore S. 25 E. to S. 32 E.; the next called
in one of those charts St^a Rosa, in the other St. Miguel
(the former of which I have continued) bore S. 42 E., to
S. 54 E.; and a high hill on the third island, called in the
Spanish charts St^a Cruz, bore S. 70 E." p. 448.

1802

[FERNÁNDEZ DE NAVARRETE, Martín.] In-
troduccion. *In* Relacion del viage hecho por
las goletas Sutil y Mexicana en el año de 1792
para reconocer el Estrecho de Fuca; con una
Introduccion en que se da noticia de las expe-
diciones executadas anteriormente por los Es-
pañoles en busca del paso del noroeste de la
América. . . . Madrid, 1802. pp. i-clxviii.

Viage de Juan Rodriguez Cabrillo, pp. xxix-xxxvi.
Viage de Sebastian Vizcaino, pp. lx-lxvii.

1803

BURNEY, James. A chronological history
of the discoveries in the South Sea or Pacific
Ocean. Part I. . . . London, 1803.

176	SAN MIGUEL ISLAND
	"1542. Voyage of J. Rod. Cabrillo," pp. 221-225. "The wind coming to blow from the North West, they stood off to sea, and saw two islands, one of which had eight leagues of coast East and West; the other four leagues. In the latter they found a small but good port, which was named <i>De la Possession</i>. They are 10 leagues distant from <i>C. de la Galera</i>. . . . There were on this island many people who lived by fishing. They made beads of the bones of fish, which served them as articles of exchange with the people of the continent. They went naked, and painted their faces in squares 'in the manner of a chess board.' The Spaniards remained eight days at <i>Puerto de la Possession</i>, and during that time were upon terms of great good will with the inhabitants. . . ." p. 222. "The island of eight leagues of coast differs two degrees in the latitude ascribed to it, from the island of <i>S^{ta} Cruz</i> as placed in the charts; yet it can no where else be looked for; and one of the smaller islands near <i>S^{ta} Cruz</i>, must be supposed the island <i>De la Possession</i>." p. 224. 1806 BURNEY, James. A chronological history of the discoveries in the South Sea or Pacific Ocean. . . . Part II. London, 1806. "1602. Expedition undertaken to the NW Coast of America," pp. 236-259. Follows Torquemada in describing the Channel islands; cf. pp. 250 ff. 1807 TAPIS, <i>Fr.</i> See ENGELHARDT, Zephyrin (1912). 1811 A MISSION record of the California Indians, from a manuscript in the Bancroft Library, by Alfred Louis Kroeber. <i>University of California Publications in American Archaeology and Ethnology</i>, 8 (Berkeley, 1908), 1-27. Condensation in English of a Spanish document which has not been published.
VII	INDIAN NOTES

1844

DUFLOT DE MOFRAS, Eugène. Exploration du territoire de l'Orégon, des Californies et de la Mer Vermeille. . . . Tome premier. Paris, 1844.

"Le canal de Santa Bárbara est formé par la côte depuis la Pointe de la *Concepcion* jusqu'à celle de la *Convercion* et les quatre îles de Santo Tomás ou Encapa, Santa Cruz, San Miguel ou Santa Rosa et San Bernardo, qui servit de tombeau à Rodriguez Cabrillo. . . ." p. 363.

"Autrefois les Indiens peuplaient ces îles, mais, depuis quelques années, ils se sont établis à terre pour éviter les mauvais traitements des équipages américains et autres qui allaient chasser les loutres et les veaux marins. Cependant, quelques indigènes vont à San Clemente, ils en rapportent des morceaux de kaolin ou de sulfate de fer." p. 364.

1851

FINDLAY, Alexander George. A directory for the navigation of the Pacific Ocean. Part I. The coasts of the Pacific Ocean. London, 1851.

"The northern group [Santa Barbara channel islands] consists of three islands lying nearly East and West: San Miguel, the western and smallest, and also the most north-westernmost of the group; Santa Rosa, and Santa Cruz, the eastern and largest." p. 326.

1853

TAYLOR, Alexander Smith. Discovery of California and Northwest America. The first voyage to the coasts of California; made in the years 1542 and 1543, by Juan Rodriguez Cabrillo and his pilot Bartolome Ferrello. San Francisco, 1853. pp. 19.

Follows the account of Martín Fernández de Navarrete, 1802.

178	SAN MIGUEL ISLAND
	1857 ESPINOSA, Rafael. Breve relacion del viaje que hizo el capitan Sebastian Vizcayno en el año de mil seiscientos dos, á reconocer la costa exterior y occidental de la California sobre el mar del Sur, y algunas noticias acerca de la Baja-California. <i>Boletin de la Sociedad Mexicana de Geografia y Estadística</i>, 5 (Mexico, 1857), 429-446. 1869 DAVIDSON, George. Island of San Miguel. In U. S. Coast and Geodetic Survey. Pacific Coast Coast pilot of California, Oregon, and Washington Territory by George Davidson. Washington, 1869. pp. 37-38. 1870 FINDLAY, Alexander George. A directory for the navigation of the North Pacific ocean . . . 2nd ed. London, 1870, pp. 169-172. 1874 BANCROFT, Hubert Howe. The native races. Vol. I. New York, 1874. (Works. Vol. 1.) "The natives call the island of Santa Cruz <i>Liniooh</i>, Santa Rosa <i>Hurmal</i>, San Miguel <i>Twocan</i>, and San Nicolas <i>Ghalashat</i>." p. 402. 1875 SCHUMACHER, Paul. Some remains of a former people. <i>Overland Monthly</i>, 15 (San Francisco, 1875), 374-379. ———Ancient graves and shell-heaps of California. In Annual Report of the Board of Regents of the Smithsonian Institution for the year 1874. Washington, 1875. pp. 335-350. San Luis Obispo Bay.
VII	INDIAN NOTES

BIBLIOGRAPHY

179

1877

POWELL, John Wesley. Linguistics.
In Powers, Stephen. Tribes of California. Wash-
 ington, 1877. (U. S. Geographical and Geological Survey
 of the Rocky Mountain region. Contributions to North
 American ethnology. Vol. III.) pp. 439-613.
 Santa Barbara family, pp. 560-567.

SCHUMACHER, Paul. Researches in the kjök-
 kenmöddings and graves of a former population
 of the Santa Barbara islands and the adjacent
 mainland.

In U. S. Geological and Geographical Survey of the
 Territories. Bulletin. Vol. III. Washington, 1877. pp.
 37-56.

1878

BOWERS, Stephen. Santa Rosa island.

In Annual Report of the Board of Regents of the Smith-
 sonian Institution for the year 1877. Washington, 1878.
 pp. 316-320.

1879

PUTNAM, Frederic Ward. Reports upon
 archæological and ethnological collections from
 vicinity of Santa Barbara, California, . . .

In U. S. Army—Engineer Department. Report upon
 United States geographical surveys west of the one hun-
 dredth meridian, in charge of First Lieut. Geo. M. Wheeler.
 Vol. VII. Archaeology. Washington, 1879. pp. 1-292.
 Appendix, pp. 293-314.

See particularly:

YARROW, Harry Crécy. Report on the operations of
 a special party for making ethnological researches in the
 vicinity of Santa Barbara, Cal., with a short historical
 account of the region explored. pp. 32-46.

CARR, Lucien. Observations on the crania from the
 Santa Barbara islands, California. pp. 277-292.

1883

BANCROFT, Hubert Howe. History of the
 North Mexican States. Vol. I. 1531-1800.
 San Francisco, 1883. (Works. Vol. 15.)

Cabrillo, pp. 130-152. Vizcaino, pp. 153-176.

AND MONOGRAPHS

4

180	SAN MIGUEL ISLAND
	BOWERS, Stephen. Fish-hooks from southern California. <i>Science</i>, 1 (Cambridge, Mass., 1883), 575. 1884 BANCROFT, Hubert Howe. History of California. Vol. I. 1542-1800. San Francisco, 1884. (Works. Vol. 18.) Cabrillo, pp. 69-81. Vizcaino, pp. 97-105. KOHL, Johann Georg. History of discovery and exploration on the coasts of the United States. <i>In</i> U. S. Coast and Geodetic Survey. Report of the superintendent . . . showing the progress of the work during the fiscal year ending with June, 1884. Washington, 1885. pp. 495-617. "History of discovery and exploration on the Pacific Coast of the United States." pp. 546-617. 1886 DAVIDSON, George. An examination of some of the early voyages of discovery and exploration on the northwest coast of America, from 1539 to 1603. <i>In</i> U. S. Coast and Geodetic Survey. Report of the superintendent . . . showing the progress of the work during the fiscal year ending with June, 1886. Washington, 1887. Appendix No. 7—1886. pp. 155-253. Gives, in parallel columns, accounts of the voyages of Cabrillo, Ulloa, and Vizcaino, with commentary by the author, pp. 160-241. (The column headed "Cabrillo" follows the narrative by Herrera; that headed "Vizcaino" the narrative of Torquemada as given in Venegas (properly Burriel), and that of "Ferrelo" represents the "Relacion" printed by Buckingham Smith.) Also table of the land-falls of the early explorers, with the names given, and the present names and latitudes, pp. 242-247. Map 18, in the same volume, is a "Chart of the land-falls of Cabrillo and Ferrelo on the Pacific Coast from the Gulf of California to latitude 42°30' by George Davidson 1886."
VII	INDIAN NOTES

On San Miguel Island, see pp. 204, 206, 226, 236. The various names recorded by Davidson are: "La Isla de la Posesion, Cabrillo. La Isla de Posesion, Ferrelo. Una de las Islas de San Lucas, Ferrelo. La Isla de Baxos, Vizcaino's chart. Ciquimuymu, Indian, Ferrelo. San Miguel Island; . . . Ferrelo named the island La Isla de Juan Rodriguez after Cabrillo's death. El Puerto de la Posesion, Cabrillo, Ferrelo. Cuyler's Harbor." p. 206.

WINSOR, Justin. Discoveries on the Pacific coast of North America.

In his Narrative and critical history of America. Vol. II. Boston, 1886. pp. 431-472.

1887

HENSHAW, Henry Wetherbee. Perforated stones from California.

Bulletin 2, Bureau of Ethnology. Washington. 1887.

1889

DAVIDSON, George. Island of San Miguel.

In U. S. Coast and Geodetic Survey. Pacific Coast. Coast pilot of California, Oregon, and Washington, by George Davidson. 4th ed. Washington, 1889. pp. 93-98.

"The island of San Miguel was discovered by Cabrillo in 1542, and Cuylers Harbor is the bay in which he wintered. He named the island La Isla de la Posesion and the harbor La Puerto de la Posesion because he went through the ceremony of taking possession of the country. He died here January 5, 1543, having directed Bartolomè Ferrelo, his pilot, to assume the command of the expedition and continue the exploration as far north as possible. Ferrelo afterwards named the island in whose harbor his commander had wintered, Juan Rodriguez. The Indian name was Liquimuymu, and there were three villages upon it.

"In 1602 Vizcaino named it San Bernardo, and this designation is retained in the Carta General of 1791 preserved in the archives at Madrid, of which we have the tracing of a copy certified by Navarrete. On his chart it is called Isla de baxos.

"In 1774 Don Juan Perez, commanding the frigate *Santiago*, named it Santa Rosa. On later Spanish charts it was sometimes called San Miguel and Santa Barbara. The present name is that adopted by Vancouver in 1793." p. 98.

182	SAN MIGUEL ISLAND
	1891 POWELL, John Wesley. Indian linguistic families of America north of Mexico. <i>In</i> Seventh Annual Report of the Bureau of Ethnology 1885-86. Washington, 1891. pp. 7-142. Chumashan family, pp. 67-68. 1894 CHÁZARI, Esteban. El archipiélago situado frente á la costa de la Alta California ¿es Mexicano? Boletin de la Sociedad de Geografía y Estadística de la Republica Mexicana, cuarta época, III (Mexico, 1894), 149-167. ———Dictamen de la Comision respectiva acerca de los derechos de Mexico sobre el archipiélago del norte situado frente a las costas de la Alta California. <i>Same</i>, pp. 168-206. 2 maps (1782, 1882). 1896 EARLE, Homer P. The Santa Barbara islands. <i>Land of Sunshine</i>, 5 (Los Angeles, 1896), 227-230. YATES, Lorenzo Gordin. The deserted homes of a lost people. The Santa Barbara channel islands. <i>Overland Monthly</i>, 2d series, 27 (San Francisco, 1896), 538-544. 1897 FERNÁNDEZ DURO, Cesáreo. En California, 1600-1606. <i>In his</i> Armada española desde la unión de los reino de Castilla y de Aragón. Tomo III. Madrid, 1897. pp. 297-308.
VII	INDIAN NOTES

BIBLIOGRAPHY	183
1901 LOWERY, Woodbury. The Spanish settlements within the present limits of the United States, 1513-1561. New York, 1901. Cabrillo's voyage, pp. 340-350. 1907 Archeological collections from San Miguel island, California. <i>American Anthropologist</i>, n. s., 9 (Lancaster, Pa., 1907), 656-657, pl. 31-33. DAVIDSON, George. The discovery of San Francisco bay. The rediscovery of the port of Monterey; the establishment of the presidio, and the founding of the mission of San Francisco. San Francisco, 1907. <i>Transactions and proceedings of the Geographical Society of the Pacific</i>. Vol. IV. Ser. II. 1907. Naming of Santa Cruz island, p. 69. HODGE, Frederick Webb, <i>ed.</i> Handbook of American Indians north of Mexico, Part I. <i>Bulletin 30, Bureau of American Ethnology</i>. Washington. Chumashan family, pp. 296-297. 1908 KROEBER, Alfred Louis. <i>See</i> A Mission Record (1811). 1910 HOLDER, Charles Frederick. The channel islands of California. . . . Chicago, 1910. Chap. II, The discoveries of Cabrillo and Vizcaino. Chap. III, The log of Cabrillo. Chap. IV, The ancient islanders.	
AND MONOGRAPHS	4

184	SAN MIGUEL ISLAND
	1911 RICHMAN, Irving Berdine. California under Spain and Mexico, 1535-1847. . . . Boston, 1911. See pp. 6-7, 82, 139. 1912 ENGELHARDT, Zephyrin. The missions and missionaries of California. Vol. II. Upper California. Part I. General History. San Francisco, Cal., 1912. "In his report of March 13th, 1807, however, Fr. Tápis writes 'that, as more than two hundred of the gentiles on the two islands have died of the measles, correspondingly fewer people exist there now. . . .'" p. 620. The islands referred to are: Limú or Santa Cruz, and Huima or Santa Rosa. 1913 WARDLE, H. Newell. Stone implements of surgery (?) from San Miguel island, California. <i>American Anthropologist</i>, n. s., 15 (Lancaster, Pa., 1913), 656-660, pl. 38. 1921 OETTEKING, Bruno. Morphological and metrical variation in skulls from San Miguel island, California. I.—The sutura nasofrontalis. <i>Indian Notes and Monographs</i>, vol. VII, no. 2, New York.
VII	INDIAN NOTES

INDEX

- Acapulco*, Mexico, mention of, in early accounts, 167, 171
Acteon shells as beads, 155
Adzes, Eskimo, 78
American Geographical Society of New York, acknowledgment to, 16
American Museum of Natural History, acknowledgment to, 16
Amethyst, beads of, 65
Anajup, Indian name for Santa Cruz island, 26, 174
Annular ornaments, of clam-shell, 138-139, 143; of haliotis shell, 126-128, 132-133
Anthony, H. B., acknowledgment to, 16
Anthropology, see *Physical anthropology*
Antler, worked, 94
Antonio de la Ascensión, Fray, *Relacion breve* of, 167-169
Aprons, woven grass, 38, 159
Archives at Madrid, Carta General in, 25, 181. See *Archivo de Indias*
Archivo de Indias, published accounts of Channel islands from, 168, 169
Arrowpoints, bone, 88-89; stone, 115-116
Arrowshaft, attaching of arrows to, 89
Asphaltum, grave lined with, 39; mortar coated with, 46; skulls covered with, 39-40; stir-

rers for, 47, 86,-87; used as: base for inlays, 28, 39, 45, 54, 55, 65-66, 89, 93, 99-103, 115, 120, 124-125, 129, 133, 144-146, 157, 158; base for settings, 58, 96-97; cement, 49-51, 55-56, 59-62, 66-68, 79, 82-84, 89-90, 92, 95, 98-100, 102, 108, 114, 135, 158; plugs, 98-100, 118-119; vessels repaired with, 44, 119; Wescott shoal source of, 20, 163
Awls, bone, 91-92; various uses of, 163; whale-bone, 78-79

Bancroft, H. H., Works of, cited, 26, 178, 179

Barbed blades, 67-68. See *Fishhooks*

Bark-shredder of Vancouver island, 78

Barrel-shape beads, 61, 62, 65, 106-107, 154, 159

Barter, deer-bones obtained by, 86, 163; steatite obtained by, 45, 162; stone artifacts obtained by, 41-42; stone beads obtained by, 64-65.

See *Currency*

Basaltic stone, pestles of, 46-47

Basketry, hats, 39, 158; receptacles, 30-31

Baxos island, see *Isla de Baxos*

Beads, bone, 106-108; coral, 30; fish-bone, 33, 111-113, 176; haliotis pearls as, 120-121; number exhumed, 38; shell, 38-39, 121-124, 146-155; stone, 38, 61-65. See *Disc-beads*,

Discs

Bipointed bone implements used as fishhooks, 83

Bird-bone, awls, 91; beads, 106-108; hair-pin, 97; implements, 74; shaft of rattle, 114-115; tubes, 102; whistles and flutes, 98-100

Birds, as food, 48, 163; blunt arrows for killing, 88-89; ornaments from claws of, 89-91

Bird-spear of Eskimo, 82

Blades, bone, for chipping, 82-83; chipped, 42; chipped chalcedony, 66-69; chipped

- obsidian, 69-72; whale-bone, 78-79. See *Knife*
- Blanks* for: shell beads, 149; shell hooks, 135-136; shell pendants, 123-124, 137; stone discs, 63-64
- Boards* marking graves, 28, 31-32. See *Grave-markers, Poles*
- Bodkins*, deer-bone, 86
- Bolivia*, wands of, 94-
- Bolton, H. E.*, Original Narratives. . . edited by, 21-24, 29-33, 166-169
- Bone* artifacts exhumed: 36-37, 41, 74-116; arrowpoints, 88-89; awls, 91-92, 163; beads, 106-108; box, 102-103; fishhooks, 81, 83-86, 161-162; hair-pins, 30, 60, 68, 91-92, 94-98, 117, 138, 143-144, 161, 163-164; handle, 78; inlays, 31; mouthpiece, 61; needles, 92-93; ornaments, 55; pendants, 89-91, 108-110; tools, 81-83; tubes, 39, 100-105; wand, 39, 93-94. See *Bird-bone, Bones, Bonework, Whale-bone*
- Bones*, animal, identification of, 16; human, implements of, 74; in kitchen-middens, 35. See *Bone, Human bone, Skeletons, Skulls*
- Bonework*, excellence of, 163-164; grinding in, 78
- Bowers, Stephen*, excavations by, 35; Fish-hooks from Southern California by, 83-84, 134, 179; Santa Rosa Island by, 141-142, 179
- Bowls*, wooden, 31, 40. See *Vessels*
- Box*, tubular bone, 102-103
- Brown pelican*, flute from bone of, 100
- Bureau of American Ethnology*, acknowledgment to, 29; Bulletins and Reports of, accounts of Channel islands in, 180, 181, 183

188	SAN MIGUEL ISLAND
	<i>Burial</i> among Chumash, 28, 31-32, 36-41, 74, 93-94; <i>burials</i>: exhumed, 34-36, 160; of children, 38, 117, 160; whale-bones used to mark, 74-76. See <i>Graves, Mortuary deposits</i> <i>Burney, James</i>, Chronological History. . . by, 33, 113, 152, 175-176 <i>Burriel, Andres Marcos</i>, account of Venegas reprinted by, 171, 180 <i>Cabo de la Galera</i>, distance of San Miguel from, 33, 166, 170, 175. See <i>Point Conception</i> <i>Cabo de San Lucas</i>, early accounts mentioning, 168 <i>Cabo Mendocino</i>, mention of, in early voyages, 167-169, 171 <i>Cabrillo, Juan Rodriguez</i>, death of, 26; Relation of, 20-24, 28, 33, 165-167; voyage of, 175, 177, 179, 180, 183 <i>Caciques</i>, wands of, 94. See <i>Chiefs</i> <i>Cactus</i> on San Miguel, 17 <i>California tribes</i>, earliest account of, 174-175; scarifiers among, 72. See <i>Chumash, Islanders, Mainland tribes</i> <i>Calliostoma sulcatum</i>, beads of, 154 <i>Canal de Santa Barbara</i>, see <i>Santa Barbara channel</i> <i>Canoes</i> of Channel islanders, 21, 28, 32-33, 164, 168-169, 172 <i>Capes</i>, otter-skin, 30 <i>Cardenas, Francisco de</i>, Coleccion by, see <i>Coleccion de documentos inéditos</i> <i>Cardwell point</i>, San Miguel island, 19; village-site near, 28-29 <i>Carr, Lucien</i>, Observations on the Crania from the Santa Barbara Islands by, 179
VII	INDIAN NOTES

INDEX	189
<i>Carrasco y Guisasola, Francisco</i>, Documentos . . . en el Archivo de Indias edited by, 20, 168-169 <i>Carta General</i> of 1791, San Miguel on, 25, 181 <i>Carving</i>, see <i>Decoration</i> <i>Cemeteries</i>, excavation of, 34-41. See <i>Burial</i> <i>Ceremonial</i> scarifying, 72 <i>Chalcedony</i>, arrowpoints, 115-116; chipped objects of, 66-69 <i>Channel islands</i>, accounts of, 17, 20-21, 27-33, 83, 175-179, 182, 183; barter with, 41-42, 45, 162-163; bibliography relating to, 165-184. See <i>Islanders, Santa Barbara channel</i> <i>Charms</i>, shell hooks as, 162 <i>Charts</i>, Spanish, San Miguel on, 25, 26, 181 <i>Cházari, E.</i>, accounts of Channel islands, 181 <i>Chessboard</i>, facial painting like, 33, 176 <i>Chiefs</i>, burial of, 28, 31-32, 37, 39-41, 93-94 <i>Children</i>, burial of, 38-39, 117, 160 <i>Chipped stonework</i>, 42, 51-52, 66-72, 115-116; tools for, 82-83. See <i>Flaked</i> <i>Chisel-like</i> bone tools, 80-81 <i>Chumash</i>, bone implements of, 116; ignorance concerning, 160-161; obsidian worked by, 71; rock-oyster shell beads of, 152; San Miguel islanders belonging to, 27-29, 181, 182; sun-worship among, 141-142, 144-146, 156. See <i>Burial, Clothing</i> <i>Chumashan family</i>, see <i>Chumash</i> <i>Ciquimuyumu</i>, Indian name for San Miguel island, 22-24, 28, 166-167, 180, 181 <i>Circular</i>, clam-shell pendants, 138; perforated stones, 53; shell beads, 152; stone implements, 67. See <i>Annular ornaments, Disc-beads, Discs</i>	
AND MONOGRAPHS	4

190	SAN MIGUEL ISLAND
	<i>Clams</i>, eagle-ray feeding on, 110. See <i>Clam-shell</i> <i>Clam-shell</i> artifacts: 137-143; beads, 148-149; hair-ornaments set with, 161; ornaments, 109; pendant, 146 <i>Clay</i>, islanders' ignorance of, 30-31 <i>Clemmys marmorata</i>, see <i>Turtleshell</i> <i>Cloaks</i>, otter-skin, 30 <i>Clothing</i> of islanders, 23, 30, 33, 92, 117, 158-162, 167, 176; exhumed, 38-39, 158-159 <i>Clubs</i>, whale-bone, 80. See <i>Sword</i> <i>Coleccion de documentos inéditos</i>. . . , <i>Relacion breve in</i>, 167-168 <i>Coleccion de documentos para la Florida</i>. . . , <i>Relacion breve in</i>, 165 <i>Columbia river</i>, arrowpoints of, 66 <i>Columellæ</i>, beads and pendants made from, 146-148 <i>Communal housing</i>, 23, 30 <i>Concentric circles design</i>, 143 <i>Concretions</i>, ornaments made from, 42, 59 <i>Conical stone vessel</i>, 44 <i>Conversion</i>, see <i>Punta de la Conversion</i> <i>Cooking vessels</i> of stone, 42-44 <i>Coral</i>, beads, 30; inlays, 31 <i>Cord</i>, attached by asphaltum, 49-50, 55-56, 59-60, 82-83, 89, 92, 95, 98-100, 108, 135; grooves for attaching, 135, 137-138; knots for attaching, 51 <i>Costansó, Miguel</i>, <i>Diario historico</i> of, 21, 40, 89, 117, 173-174 <i>Coycoy</i>, pueblo on Santa Rosa island, 23, 167 <i>Cremation</i> among California tribes, 28 <i>Crespi, Fray Juan</i>, <i>Copia del Diario</i>. . of, 21, 174
VII	INDIAN NOTES

INDEX	191
<i>Crook point</i>, San Miguel island, 19 <i>Cross</i> design, 66 <i>Cross-line</i> design, 111, 122, 125-128, 141, 148 <i>Crystals</i>, ornaments of, 59-60, 161; settings of, 58, 94, 96 <i>Culture</i> of San Miguel, see <i>Chumash, Islanders</i> <i>Cup</i>, steatite, 44-45 <i>Currency</i>, beads used as, 33, 113, 152, 176. See <i>Barter</i> <i>Curved</i> bone, fishhook barbs, 83-86; implements, 81-82; needles, 92-93 <i>Customs</i>, mortuary, see <i>Burial</i> <i>Cuyler harbor</i>, San Miguel island, Cabrillo at, 26, 33, 166, 181; description of, 18-19; first called El Puerto de la Posesion, 22, 24-25, 180; grave-yards near, 36; village-sites near, 28-29 <i>Cylindrical</i>, shell beads, 146-149, 152-153; stone beads, 61; stone pendants, 55-57; stone sinkers, 49; whale-bone artifacts, 78-79 <i>Dall, William H.</i>, excavations by, 35-36 <i>Davidson, George</i>, Discovery of San Francisco Bay by, 182; Examination of Some of the Early Voyagers by, 167, 180; Island of San Miguel by, 21, 24-25, 28-29, 178, 181 <i>Dead</i>, see <i>Burial, Mortuary deposits</i> <i>Decoration</i>, incised, 49-50, 55, 95-96, 104-105, 109, 122-128, 132-133, 141-143; 148-149; incised, tools for, 111, 122-123; painted, of stone knife-blade, 66. See <i>Design, Inlays, Painting</i> <i>Deer</i>, extraneous origin of, 86, 163; sinews, thongs of, 32. See <i>Antler</i>	
AND MONOGRAPHS	4

192	SAN MIGUEL ISLAND
	<i>Deer-bone</i>, awls, 91; beads, 106; hairpins, 94-96, 163-164; implements, 74, 81-82; pendant, 109; tubes, 101-105; wand, 39, 93-94; whistles, 98. <i>See Antler</i> <i>Deerskins</i>, wearing of, 30, 117 <i>Dentalium shell</i>, beads, 149; pendants, 154 <i>Dental plates</i> of eagle-ray, implements from, 110-111, 122-123 <i>Design</i>, chessboard, 33, 178; concentric circles, 143; cross, 66; cross-line, 122-123, 125-128, 141, 148; dots, 95, 104-105, 109, 141-143; lines, 50, 95, 124, 128; ray-like lines, 55, 141-142, 144-146, 148, 156; star-shape, 142-143; triangles, 143; zigzag, 109. <i>See Decoration</i> <i>Disc-beads</i>, shell: grinders for, 73; incised decoration of, 148-149; inlay of, 39, 54-55, 93, 103, 115, 144, 157; stone, 63. <i>See Discs</i> <i>Discs</i>, shell, for inlays, 56, 63-64, 99, 102-103, 120, 124-125, 143-146, 151-152, 157-158. <i>See Disc-beads</i> <i>Dish-form</i> of stone vessels, 45 <i>Documentos para la historia de Mexico. . .</i>, accounts of Channel islands in, 170, 174 <i>Dome-shape</i> houses, 28-30 <i>Doran, E. L.</i>, excavations, by 35 <i>Dot design</i>, 95, 104-105, 109, 141-143 <i>Dreyfus, Louis G.</i>, excavations by, 35 <i>Drilled</i>, shell beads, 121-122, 152-154; stone ornaments, 57-58 <i>Drills</i>, chalcedony, 69; for shell-work, 122 <i>Duflot de Mofras, Eugène</i>, Explorations. . . by, 21, 176-177 <i>Dunes</i>, <i>see Surface</i> <i>Eagle-claws</i>, necklaces of, 89-91
VII	INDIAN NOTES

INDEX	193
<i>Eagle-ray</i>, dental plates of, as implements, 110-111, 122-123 <i>Earle, H. P.</i>, Santa Barbara Islands by, 182 <i>Ears</i>, shell hook ornaments for, 134; stone pendants for, 59 <i>Elephant seal</i>, artifact from tooth of, 89; handle from radius of, 78-80 <i>Encapa</i>, see <i>Santo Tomás</i> <i>Engelhardt, Z.</i>, Missions and Missionaries of California by, 183 <i>Eskimo</i>, bird-spears of, 82; bone implements of, 78 <i>Espinosa, Rafael</i>, Breve Relacion. . . by, 177 <i>Estocoloco</i>, pueblo on Santa Rosa island, 23, 167 <i>Evans, Richard Stuart</i>, translation by, of Ferrelo's account, 165 <i>Excavations</i>, prior, on San Miguel, 15, 34-37, 178, 182, 183 <i>Exchange</i>, see <i>Barter, Currency</i> <i>Facial painting</i>, 30, 33, 176 <i>Fages, Pedro</i>, Voyage en Californie by, 174-175 <i>Farallon de Lobos</i>, mention of, 172 <i>Feathers</i>, hair adorned with, 30 <i>Fernández de Navarrete, Martín</i>, chart certified by, 25, 181; Relacion by, 175, 177 <i>Fernández Duro, Cesáreo</i>, En California by, 182 <i>Ferrelo, Bartolome</i>, accounts by, of Cabrillo, 165, 180; Cabrillo's pilot, 22, 24-25, 166, 177, 181 <i>Fetishes</i>, see <i>Charms</i> <i>Findlay, A. G.</i>, Directory for Navigation . . . by, 21, 177-178 <i>Fireplace</i> of islanders, 30	
AND MONOGRAPHS	4

194	SAN MIGUEL ISLAND
	<i>Fish</i>, haliotis-shell ornament resembling, 132; whale-bone club for killing, 80. See <i>Fish-bone</i>, <i>Fishhooks</i>, <i>Fishing</i> <i>Fish-bone</i>, artifacts, 74, 110-113; beads, 33, 111-113, 176; identification of, 16 <i>Fishhooks</i>, bone, 81, 83-86; Bowers on, 179; shell, 133-137, 161-162, 179; stone, 71 <i>Fishing</i>, canoes for, 32-33, 168-169; importance of, 23, 27, 33, 48-49, 110, 167, 170, 175-176. See <i>Fishhooks</i> <i>Flaked</i>, and perforated stone, 53-54; ornament, 60. See <i>Chipped stonework</i> <i>Flakes</i>, chalcedony, 69; stone, 122 <i>Flaking tools</i>, bone, 82-83 <i>Flexed burials</i>, 38-39 <i>Flint chips</i> in kitchen-middens, 35 <i>Florida</i>, painted chipped implement found in, 66-67 <i>Flutes</i>, bone, 99-100 <i>Food</i>, of Chumash, 23, 27, 167, 175-176; utensils for, 30. See <i>Fishing</i> <i>Ford</i>, James B., pipe presented by, 61 <i>Foreshafts</i> for spears, whale-bone, 79 <i>Funerals</i>, see <i>Burial</i> <i>Fur</i> clothing, 160. See <i>Deerskins</i>, <i>Otter-skin</i> <i>Ghalashat</i>, Indian name for San Nicolas island, 26, 178. See <i>San Nicolas island</i> <i>Glass beads</i>, scarcity of, 38, 159 <i>Glidden</i>, Ralph, assistance by, 15; on fishing with shell hooks, 136-137 <i>Globular</i>, shell beads, 149; stone beads, 62-63; vessels, 42, 44, 45 <i>Gonzalez Cabrera Bueno</i>, Ioseph, Navegacion . . . of, 21, 171-172
VII	INDIAN NOTES

Grass, growth of, 17, 20; houses of, 28; woven, 38, 81, 159. See *Reed*

Grave-markers, whale-bone, 74-76; wooden, 28, 31-32, 40

Graves, asphaltum lining, 39; isolated, 34; mortar placed over, 31; of chiefs, 28, 31-32, 37, 39-41, 93-94; whale-bones lining, 36-38, 75-76. See *Burial*, *Grave-markers*, *Mortuary deposits*

Grave-slabs, whale-bones as, 36-38, 75-76

Grinding, of bone, 78, 98; of seeds, 31; of shell beads, 73, 121; of shell ornaments, 124, 129

Gritty stone, bone whistle finished with, 98

Grooved, bone beads, 108; bone pin, 92; bone tube, 104; haliotis pearl, 121; shell hooks, 135; shell ornament, 131-132; shell pendants, 120, 137-138, 140-143; stone artifacts: 45; arrowpoints, 89; beads, 62; ornaments, 58; pendants, 55-56; sinkers, 49, 51; sword, 65-66

Gulf of California, Davidson's chart of, 180

Hafting, asphaltum used in, 66-68, 79-80, 82; of arrows, 89. See *Handle*

Hair-ornaments, bone, 91-92; chalcedony, 68; early accounts of, 30, 161; shell, 96, 98, 117, 138, 143-144, 158, 161; turtleshell, 114

Hair-pins, bone, 60, 68, 91-92, 94-98, 117, 138, 143-144, 158, 161, 163-164; early accounts of, 30. See *Pins*

Haliotis californiensis, see *Haliotis shell*

Haliotis shell, beads, 121-123; box bottom, 102; containers, 119; cross-line decoration of, 111, 122-123, 141, 148; discs, 124-125; hair-ornaments set with, 161; hooks, 133-

196	SAN MIGUEL ISLAND
	137; inlay, 89, 99, 103, 157-158; ornaments, 117, 120, 123-124, 126-133; pendants, 121-123, 128; scoops, 117-118. See <i>Pearls</i> <i>Hammerstones</i>, absence of, 47 <i>Handle</i>, antler, 94; bone, 80; <i>handles</i>: inlaid, 158; of knives, 66-68; of shell pendants, 132; of tools, 78-79, 82-83 <i>Harford, W. G. W.</i>, excavations of, 34 <i>Harrington, John P.</i>, on Chumash of Channel islands, 29 <i>Harris point</i>, San Miguel island, 19 <i>Hats</i>, basketry, 39, 158 <i>Heating asphaltum</i>, vessels for, 46 <i>Hematite</i>, haliotis-shell containers for, 118-119; in mortar, 46; keyhole limpet shell ornaments painted with, 156; knife-blade painted with, 66; ornament imbedded in, 145; placed in graves, 40-41; stirrers for, 47 <i>Hemert-Engert, Adolph van</i>, Narrative of the Portolá Expedition edited by, 173 <i>Hemispherical cup</i>, 44-45 <i>Henshaw, H. W.</i>, introduction by, of Ferrelo's account, 165-166; Perforated Stones from California by, 52, 180 <i>Herrera y Tordesillas, Antonio de</i>, Historia general . . . of, 21, 113, 170, 180 <i>Heye, Mrs Thea</i>, acknowledgment to, 15 <i>Hodge, F. W.</i>, Handbook of American Indians edited by, 183 <i>Holder, C. F.</i>, Channel island of California. . . by, 167, 183 <i>Hooks</i>, haliotis shell, 133-137; obsidian, 71; shell, 161-162 <i>Hospitality</i>, of Chumash, 27; of islanders, 30 <i>Housing</i> of Channel islanders, 23, 28-30
VII	INDIAN NOTES

- Huima*, see *Hurmal*
Human bone, hair-pins, 97-98, 163-164; implements, 74; bones, scattered, 34, 37-38
Hurmal, name for Santa Rosa island, 26, 178
Implements, see *Surgical instruments, Tools*
Incised, see *Decoration*
Indians of California, earliest account of, 174-175; of Puget sound, 78. See *Chumash, Islanders, Mainland tribes*
Inlays, clam-shell, 137; coral and bone, 31; keyhole limpet shell, 157; metal, 94; perforation of, 63-64; shell, 28, 39, 45, 54-56, 65-66, 89, 93, 99-103, 115, 117, 120, 124-125, 129, 133, 144-145, 158. See *Disc-beads, Discs*
Instruments, surgical, 71-72
Isla de Baxos, Navarrete's name for San Miguel island, 24-25, 180, 181
Isla de Juan Rodriguez, Ferrelo's name for San Miguel island, 22-24, 166-167, 180, 184
Isla de la Posesion, early name of San Miguel island, 22-25, 166, 170, 175, 176, 180, 181
Islas de los Ladrones, boats of, 172
Island of Juan Rodriguez, see *Isla de Juan Rodriguez*
Islanders of Channel Islands, culture of, 21-24, 27-34, 83, 88-89, 167, 169-170, 175-176. See *Bibliography and Chumash*
Islands of San Lucas, see *San Lucas*
Jacot, Arthur P., acknowledgment to, 16
Jar-form, of reed vessels, 31; of stone vessels, 42-43. See *Vessels*
Johnson, Frederick, assistance by, 15
Jornada de Sebastian Vizcaino, see *Vizcaino, Sebastian*

198	SAN MIGUEL ISLAND
	<i>Karok Indians</i>, gambling game of, 112 <i>Keyhole limpet shell</i>, beads of, 54; ornaments of, 155-157 <i>Kilts</i>, see <i>Aprons</i> <i>Kitchen-middens</i> on San Miguel, 35-37, 178 <i>Knife</i>, woman's, 78; <i>knives</i>, stone, 37. See <i>Blades</i> <i>Knobbed pestles</i>, 48 <i>Kohl</i>, J. G., History of Discovery . . . on the Coasts of the U. S., by, 21, 179-180 <i>Kroeber</i>, A. L., Mission Record translated by, 176 <i>Ladrone Islands</i>, see <i>Islas de los Ladrones</i> <i>Lævicardium elatum</i>, pendants of, 144, 146 <i>La Purísima mission</i>, Chumash of San Miguel settled at, 29 <i>Lavender rock-oyster shell</i>, 152 <i>Lilibeque</i>, pueblo on Santa Cruz island, 23, 167 <i>Limestone</i>, bead, 63; mortar, 46; pipe, 61 <i>Limu</i>, Indian name for Santa Cruz island, 22, 166, 183 <i>Lines</i> design, 50, 95, 122-123, 124-128; rayed, 55, 141-142, 144-146, 148, 156 <i>Liniooh</i>, Indian name for Santa Cruz island, 26, 178 <i>Liquimuyumu</i>, Indian name for San Miguel island, 25. See <i>Ciquimuyumu</i> <i>Lotolic</i>, Indian name for Santa Rosa island, 26, 174 <i>Lowery</i>, Woodbury, The Spanish Settlements within . . . the U. S. . . by, 182 <i>Lucapina crenulata</i>, see <i>Keyhole limpet shell</i> <i>Mackerel</i>, beads from vertebræ of, 112-113
VII	INDIAN NOTES

INDEX

199

Mainland tribes, barter with, 41-42, 113, 152, 154; basketry hats of, 39; burial among, 36; clay vessels of, 30-31; cremation among, 28; food of, 27; means of communication with, 164

Mats, platting of, 81

Matting, skeletons wrapped with, 37

Medicine-man, see *Chiefs*

Mending of receptacles, by means of perforation, 144-145; with asphaltum, 44, 119

Mendoça, Antonio de, account of voyage of, 107

Metal inlay, 94

Mexico, serpentine beads of, 64-65

Mirounga angustirostris, see *Elephant seal*

Missions, distribution of Indians in, 29, 33-34

Mitote, singing as in a, 33, 169

Mitra shell, pendant of, 154

Monterey, early mention of, 168, 171, 173, 182

Moore, Clarence B., painted chipped implement found by, 66-67

Mortar, for grinding seeds, 31; for paint, 45; found by Schumacher, 36; stone, 44-46; whale-bone, 76-78

Mortuary customs, see *Burial*

Mortuary deposits: 36-41; bone pins, 95-97, 161; bone tubes, 39, 101; bone wand, 39, 93-94; crystals, 60; eagle-claw necklace, 91; fishbone artifacts, 110, 112-113; glass beads, 38, 159; hung over graves, 28, 31-32; mortars, 31; of chiefs' graves, 37, 39-41; shell artifacts, 117, 125, 160; shells, 117-118, 156

Mouth, constricted, of vessels, 31, 43

Mouthpieces, bone, for pipes, 61, 102

Mud-turtle, see *Turtleshell*

AND MONOGRAPHS

4

200	SAN MIGUEL ISLAND
	<i>Muoc</i>, pueblo on Santa Cruz island, 23, 167 <i>Mussels</i>, eagle-ray feeding on, 110 <i>Musselshell</i>, blanks, 149; hooks, 133-137; necklaces, 125 <i>Myliobatis californicus</i>, see <i>Eagle-ray</i> Names, of Channel islands, 22-23, 25-26, 174; of San Miguel, 21-24, 174, 180 <i>Navarrete</i>, see <i>Fernández de Navarrete</i>, <i>Martín</i> <i>Necklace</i>, of bone tubes, 101; of eagle-claws, 91; of fish-bone beads, 112-113; of haliotis-shell discs, 125; <i>necklaces</i>, method of attaching ornaments to, 59-60, 62, 117 <i>Needles</i>, bone, 92-93 <i>New Mexico</i>, early mention of, 170 <i>Nicalque</i>, Indian name for Santa Rosa island, 22, 166 <i>Nichochi</i>, pueblo on Santa Rosa island, 23, 166-167 <i>Nichols</i>, John T., acknowledgment to, 16 <i>Nimollollo</i>, pueblo on San Miguel island, 23, 28, 166 <i>Nimoyoyo</i>, see <i>Nimollollo</i> <i>Ninumu</i>, pueblo on Santa Cruz island, 23, 167 <i>Niquesesquelua</i>, pueblo on Santa Cruz island, 23, 167 <i>Notched</i>, see <i>Serrated</i> <i>Obsidian</i>, chipped objects of, 66-72 <i>Odocoileus hemionus californicus</i>, see <i>Deer</i> <i>Oetteking</i>, Bruno, Morphological and Metrical Variation in Skulls from San Miguel Island by, 115, 184 <i>Oil well</i> on Wescott shoal, 20 <i>Oliva biplacata</i>, see <i>Oliva shell</i>
VII	INDIAN NOTES

INDEX	201
<i>Oliva shell</i>, beads, 149-152; entire, as beads, 154-155; inlays, 55 <i>Olivella shell</i>, beads, 39, 54, 149-152; discs, 124-125; entire, as beads, 154-155; inlay, 55, 93, 103, 115, 144-146, 157, 158 <i>Orientation</i> of burials, 36-39 <i>Ornaments</i>, antler, 94; arrangement in graves, 38; bone, 74; found by Schumacher, 36; natural concretions as, 42, 59; shell, 28, 38, 117, 120, 123-124; shell hooks as, 133-137, 162; shell, perforated, 130-133; stone, 55-60. See <i>Annular ornaments</i>, <i>Hair-ornaments</i>, <i>Hair-pins</i>, <i>Inlays</i>, <i>Pendants</i> <i>Osteothyosis</i> caused by arrowpoints, 116 <i>Ostrea lurida</i>, see <i>Rock-oyster</i> <i>Otter-skin</i> clothing, 30, 117 <i>Oval</i>, shell beads, 152; shell inlays, 157 <i>Oysters</i>, eagle-ray feeding on, 110. See <i>Rock-oyster</i>, <i>Spiny oyster</i> <i>Pacheco, Joaquin</i>, see <i>Coleccion de documentos inéditos</i> <i>Paddles</i>, early accounts of, 164 <i>Padres</i>, distribution of Indians by, 29, 33 <i>Paez, Juan</i>, account by, of Cabrillo, 165 <i>Paint</i>, white, keyhole limpet shell ornaments decorated with, 156. See <i>Hematite</i> <i>Paint-cups</i>, stone, 42, 44-46 <i>Painting</i>, of body, 30, 33, 176; of canoes, 32; of chipped implement, 66-67; of grave-markers, 28, 32. See <i>Hematite</i>. <i>Palacios, Gerónimo Martin</i>, Explication . . . de Costa . . . by, 21, 168-170 <i>Palou, Fray Francisco</i>, Noticias de la Nueva California by, 174	
AND MONOGRAPHS	4

- Patiquilid*, pueblo on Santa Cruz island, 23, 167
Patiquiui, pueblo on Santa Cruz island, 23, 167
Patterns in basketry, 30
Pearls of the haliotis, ornaments of, 120-121
Pebble, mortar made of, 45-46; *pebbles*, as pendants, 56; as sinkers, 50-51; hot, seeds roasted with, 31; paint-cups fashioned from, 42; placed in rattles, 114
Pecked stone vessels, 43-44, 46
Pecking implements, pestles as, 47
Pelican, see *Brown pelican*
Pendants, bone, 89-90, 108-110; chipped chalcedony, 68; clam-shell, 137-143; crystals as, 60; entire shells as, 154-155; haliotis pearls as, 120-121; haliotis shell, 117, 120-124; keyhole limpet shells as, 157; shell, 144, 146; stone, 55-58, 64; stone hooks as, 71
Perez, Don Juan, San Miguel called Santa Rosa by, 25, 181
Perforated, claws, 89-91; inlays, 93, 124-125, 129-130, 152; needles, 93; planks, 32; stones, problematical uses of, 52-54, 59, 162-163; teeth, 89; tubular box, 102-103; vessels, 144-145. See *Inlays*, *Pendants*
Pestles, 45-47; used as hammers, 47-48
Physical anthropology, *Department of*, skeletons examined by, 115
Picks, Eskimo, 78
Pilidquay, pueblo on Santa Cruz island, 23, 167
Pilot, Cabrillo's, see *Ferrello*, *Bartolome*
Pine, uses of, 32
Pink beads from spiny oyster shells, 149
Pins, bone, 60, 89, 91-92. See *Hair-pins*
Pipes, stone, 60-61, 102
Pisqueno, pueblo, on Santa Cruz island, 23, 167

INDEX	203
<i>Pitch</i>, seams of canoe calked with, 32; vessels coated with, 31 <i>Pitted</i> hammerstones, 47-48 <i>Planks</i>, see <i>Boards</i> <i>Platting</i> of mats, 81 <i>Plugs</i>, asphaltum, in haliotis shells, 118; in whistles, 98-100 <i>Poele</i>, pueblo on Santa Cruz island, 23, 167 <i>Point Bennet</i>, San Miguel island, 19-20; village-site at, 28-29 <i>Point Conception</i>, called by Cabrillo Cabo de la Galera, 21, 166, 170; early mention of, 171, 175, 176 <i>Poles</i>, graves marked with, 28, 31-32, 40 <i>Polish</i>, on perforated stone, 53; on wood, 31 <i>Portolá</i> expedition, accounts of, 21-24, 32, 166-169, 173-174 <i>Pot-hunters</i>, excavations of, 35-36 <i>Powell, J. W.</i>, definition of Chumashan by, 29; Indian Linguistic Families of America by, 181; Linguistics . . . by, 178 <i>Powers, Stephen</i>, Tribes of California . . . by, 178 <i>Pualnacatup</i>, pueblo on Santa Cruz island, 23, 167 <i>Pueblos</i>, see <i>Village-sites</i> <i>Puerto de la Posesion</i>, see <i>Cuyler harbor</i> <i>Puget sound</i>, bone implements of, 78 <i>Punch</i>, see <i>Bodkins</i> <i>Punta de la Conversion</i>, mention of, 172, 176 <i>Purple</i> rock-oyster shell, 152 <i>Putnam, F. W.</i>, Reports upon . . . Collections from. . . Santa Barbara by, 52, 158, 179 <i>Rasps</i>, dental plates of eagle-ray as, 110-111	
AND MONOGRAPHS	4

204	SAN MIGUEL ISLAND
	<i>Ray-like lines</i>, 55, 141-142, 144-146, 148, 156 <i>Reamers</i>, stone, 51-52, 68-69; whale-bone, 81 <i>Rectangular shell beads</i>, 152 <i>Red paint</i>, see <i>Hematite</i> <i>Reed</i>, baskets and vessels of, 30; <i>reeds</i>, houses covered with, 29-30. See <i>Grass</i>, <i>Rushes</i> <i>Rejects</i> not found on San Miguel, 41, 162 <i>Reveley, William</i>, translation by, of Costansó's <i>Diario</i>, 173 <i>Ribs</i>, hair-pins made from, 94, 97; implements made from, 81-82 <i>Richman, I. B.</i>, California under Spain and Mexico by, 183 <i>Rims</i>, shell, beads made from, 121-123; incised decoration on, 111, 122-123, 124-128, 141, 148-149; scalloped, 131; stone, inlaid, 55. See <i>Serrated</i> <i>Rincon</i>, shell hooks found at, 134 <i>Ring-like</i>, see <i>Annular ornaments</i> <i>Rings</i>, shell, 91-92; stone, 54-55 <i>Roasting of seeds</i>, 31 <i>Rock-oyster</i>, hair-ornaments set with, 161; pendant, 142; shell beads, 152-154; shell discs, 143-146 <i>Rocks in kitchen-middens</i>, 35. See <i>Stones</i> <i>Rose, R. S.</i>, <i>Diary of Vicente Vila</i> edited by, 174 <i>Rubbing-stones</i>, pestles as, 46 <i>Rushes</i>, vessels of, 31. See <i>Reed</i> <i>Rust, H. N.</i>, shell hooks in collection of, 134-135, 182 <i>San Bernardo</i>, early name for San Miguel island, 24-26, 174, 175, 177, 181 <i>San Clemente island</i>, early mention of, 172, 177; turtleshell rattle from, 114-115 <i>Sand</i>, see <i>Surface</i>
VII	INDIAN NOTES

INDEX

205

- San Diego*, clay vessels of, 31; early mention of, 171, 173, 174
- Sandstone*, beads, 62-63; grinders, 73; of San Miguel, 41; perforated artifacts of, 52-53; ring, 55; vessel, 42-44
- San Francisco bay*, discovery of, 182
- San Lucas*, San Miguel one of islands of, 22, 24, 166, 180
- San Luis Obispo bay*, early mention of, 178
- San Luis Rey*, Costansó sights San Miguel from, 25, 173
- San Miguel island*, bibliography relating to, 165-184; discovery of, 20-22, 166, 168, 180, 181; early name for Santa Rosa island, 26; early names of, 21-26, 169, 172, 174, 175, 177, 178; excavations on, 15, 182, 183. See *Santa Rosa island*
- San Nicolas island*, early mention of, 169; Ghalashat Indian name for, 26, 178; Indians left on, 33-34
- San Salvador*, early name for Santa Cruz island, 23-24. See *Santa Cruz island*
- Santa Barbara*, mention of, 17, 179; shell hooks found near, 134
- Santa Barbara channel*, accounts of, 20-34, 168, 172-176; bibliography relating to, 165-184. See *Channel islands*
- Santa Barbara county*, 17, 134
- Santa Barbara Indians*, fishhooks of, 83
- Santa Barbara island*, early mention of, 169, 172; early name for San Miguel island, 25, 181; early name for Santa Cruz island, 25, 174
- Santa Catalina island*, bone arrowpoint from, 88; early mention of, 168, 169, 172

AND MONOGRAPHS

4

206	SAN MIGUEL ISLAND
	<i>Santa Cruz island</i>, Chumash inhabiting, 27; early mention of, 175, 177, 183; early name for Santa Rosa island, 25-27; Indian names for, 26, 174, 178; San Salvador early name for, 23-24, 167 <i>Santa Rosa island</i>, Chumash inhabiting, 27; discovery of, 22, 166; early mention of, 177; Indian name for, 178, 183; Perez's name for San Miguel, 25, 181; San Miguel early name of, 26, 175; Santa Cruz early name of, 25-26 <i>Santiago</i>, Perez's frigate so named, 25, 181 <i>Santo Tomás</i>, San Miguel one of islands of, 176 <i>Scalloped</i> edge of haliotis shell, 131. See <i>Serrated</i> <i>Scarifiers</i> common to California tribes, 72 <i>Schumacher, Paul</i>, accounts of Channel islands by, 178; excavations by, 35-37, 160; on topography of San Miguel island, 18-19; on whale-bone slabs, 74 <i>Scombridæ</i> (<i>Germo alalunga</i>), see <i>Mackerel</i> <i>Scrapers</i>, chalcedony, 67, 69 <i>Sea-grass</i>, kilts of, 38; platting of, 81. See <i>Grass</i> <i>Sea-lions</i>, abundance of, 163; awls from bones of, 91; beads from bones of, 106; implements from bones of, 74, 81-82; teeth of, as ornaments, 89 <i>Seals</i>, used as food, 48; whale-bone club for killing, 80 <i>Seeds</i>, baskets for holding, 30; meal made of, 31 <i>Serpentine</i> beads, 64 <i>Serrated</i>, blades, 67-68; bone hair-pins, 96-97; clam-shell pendants, 141; haliotis ornaments,
VII	INDIAN NOTES

- 129; keyhole limpet shells, 157; pendants, 128; shell disc, 125. See *Rims*
- Sheep*, raising of, on San Miguel, 19-20
- Shell* artifacts exhumed: 36-38, 41, 117-158, 160; beads, 38-39, 54-55, 93, 103, 115, 146-155, 158; hair-ornaments, 96, 98, 117, 138, 143-144, 158, 163-164; hooks, 133-137, 161-162; inlays, 28, 45, 54-56, 65-66, 99-103, 120, 124-125, 129, 133, 144-145, 152, 158; pendants, 117, 120-124, 137-144, 146, 154-155, 157; rings, 91-92. See *Clam-shell*, *Haliotis shell*, *Keyhole limpet shells*, *Oliva shell*, *Olivella shell*, *Turtles shell*
- Shells*, as beads, 154-155; identification of, 16; in kitchen-middens, 35; mortuary deposits of, 117-118, 156. See names of various species
- Shellwork*, excellence of, 28, 152-154, 163-164; tools for, 67, 69, 73, 111, 122-123
- Shoshonean family*, southern Channel islands inhabited by, 27
- Singing* of rowers, 33, 169
- Sinkers*, stone, 48-51
- Skeletons*, condition of, 115; exhumed by Schumacher, 36; number exhumed, 15, 34, 160. See *Burial*
- Skin* garments, 92, 160. See *Fur*
- Skin-dressing*, implements for, 79-80
- Skulls*, asphaltum covering, 39-40; mortuary deposits near, 59; position of, in burial, 38-40. See *Skeletons*
- Slabs*, see *Grave-slabs*
- Smith, Thomas Buckingham*, Cabrillo's account edited by, 165, 180
- Smoothing-stone*, see *Rubbing-stones*

208	SAN MIGUEL ISLAND
	<i>Soapstone</i>, see <i>Steatite</i> <i>Spanish</i> accounts of Channel islands, see the Bibliography <i>Spearpoints</i>, bone, 51; stone, 37, 51; whale-bone, 78-79 <i>Spiny oyster</i>, beads from shells of, 149 <i>Spondylus pictorum</i>, see <i>Spiny oyster</i> <i>Springs</i> on San Miguel island, 19, 36, 43 <i>Squares</i>, face painted in, 33, 176 <i>Staff</i>, see <i>Wand</i> <i>Star-shape</i> design, 142-143 <i>Steatite</i>, beads, 38, 61-63; cup, 44-45; extraneous to San Miguel, 41, 162; ornaments, 58-59; pendants, 55-58, 64; perforated artifacts, 52-54; pipes, 60-61; ring, 55; sinkers, 49; tools for working, 51-52; tubes, 61; vessels, 42 <i>Stemmed blades</i>, 67-68 <i>Stirrers</i> for asphaltum, 47, 86-87 <i>Stone</i> artifacts exhumed: 36-37, 41-73; arrow-points, 115-116; beads, 38, 61-65; chipped objects, 66-72; mortars, 31; ornaments, 55-60; pipes, 60-61, 102; rings, 54-55; sinkers, 48-51; spearpoints, 37, 51; sword, 65-66; tools, 39; tubes, 61. See <i>Chalcedony</i>, <i>Concretions</i>, <i>Flint</i>, <i>Limestone</i>, <i>Obsidian</i>, <i>Pebble</i>, <i>Sandstone</i>, <i>Steatite</i>, <i>Stonework</i> <i>Stones</i>, perforated, 52-54, 162-163 <i>Stonework</i>, excellence of, 31, 51, 62, 66; scarcity of, 41-42, 162; tools for, 51-52, 81-83, 182-183 <i>Sun-worship</i> among Chumash, 141-142, 144-146, 156. See <i>Ray-like lines</i> <i>Surface</i>, finds, 35-38; levels, shifting of, 17-18, 35, 41. <i>Surgical instruments</i>, stone, 71-72, 183
VII	INDIAN NOTES

INDEX	209
<i>Sword</i>, stone, 65-66 <i>Tapis</i>, Fray, report of, 183 <i>Taschenberger</i>, Arthur, assistance by, 15 <i>Taylor</i>, A. S., Discovery of California by, 177 <i>Teeth</i>, animal, ornaments of, 89 <i>Teggart</i>, F. J., acknowledgment to, 16; bibliography prepared by, 165; Narrative of Portolá Expedition edited by, 173-174 <i>Thoa</i>, Indian name for San Miguel island, 26, 174 <i>Thongs</i> binding planks forming canoe, 32 <i>Tie-string</i>, grass, 159 <i>Tivela crassatelloides</i>, see <i>Clam-shell</i> <i>Tools</i>, dental plates of eagle-ray as, 111, 122-123; for shell-working, 67, 69, 73; for stoneworking, 51-52, 81-83; handles for, 78-79, 158; stone, 39, 58-59. See <i>Drills</i>, <i>Reamers</i>, <i>Scrapers</i> <i>Tooth-picks</i>, awls as, 163 <i>Topography</i> of San Miguel island, 17-20 <i>Torquemada</i>, Juan de, Monarchia Indiana . . . of, 21, 171, 180 <i>Toss-and-catch</i> game of Karok, 112 <i>Trade</i>, see <i>Barter</i> <i>Triangles</i> design, 143 <i>Trivia californica</i>, pendants of, 154 <i>Truncated</i>, beads, 63; clam-shell pendant, 140-141; shell beads, 149 <i>Tubes</i>, bone, 39, 100-105; stone, 61 <i>Tukan</i>, see <i>Twocan</i> <i>Tule</i>, see <i>Grass</i> <i>Turtleshell</i> rattle, 114-115 <i>Twocan</i>, Indian name for San Miguel island, 26, 178	
AND MONOGRAPHS	4

210	SAN MIGUEL ISLAND
	<i>Ungrooved</i> sinkers, 49 <i>Univalves</i>, pendants from, 146-148 <i>University of California</i>, acknowledgment to, 16 <i>Vancouver, George</i>, voyage of discovery of, 21, 24-26, 175 <i>Vancouver island</i>, implements of, 78 <i>Vegetation</i> of San Miguel island, 17-20 <i>Venegas, Padre Miguel</i>, <i>Noticia de la California</i>. . . by, 171, 180 <i>Ventura county</i>, shell hooks in, 134 <i>Vertebrae</i>, fish, used as beads, 111-113; whale, marking graves, 74-76; whale, mortar of, 76-78 <i>Vessels</i>, reed, 30; shell, 118-119; stone, 42-45; wooden, 31. See <i>Bowls</i> <i>Vila, Vicente</i>, diary of, 174 <i>Villages</i>, Channel islanders living in, 23, 29-30, 166-167 <i>Village-sites</i>, on San Miguel, 28-29, 166; fish-bones found on, 110 <i>Vizcaino, Sebastian</i>, Diary of, 20, 24-25, 30, 32-33, 168-171; voyage of, 175, 177, 179, 181, 183 <i>Voyagers</i>, see the Bibliography <i>Wand</i>, bone, 39, 93-94 <i>Wardle, H. N.</i>, <i>Stone Implements of Surgery</i> by, 72, 183 <i>Warriors</i>, see <i>Chiefs</i> <i>Water</i>, reed vessels for, 31; stone vessels for, 43 <i>Weaving</i>, bone tools for, 81; of baskets, 30; of otter-skins, 30. See <i>Woven</i> <i>Wescott shoal</i>, asphaltum from, 20, 163 <i>Whale</i> used as food, 48
VII	INDIAN NOTES

INDEX	211
<i>Whale-bone</i>, abundance of, 163; hair-pins, 97; implements, 76-81; <i>whale-bones</i>, as grave-markers, 74-76; as grave-slabs, 36. See <i>Vertebrae</i> <i>Wheeler, George M.</i>, Report by, on U. S. Geographical surveys. . . , 166, 179 <i>Whistles</i>, bone, 98-99 <i>White paint</i>, keyhole limpet shells ornamented with, 156 <i>Winds</i>, see <i>Surface</i> <i>Winsor, Justin</i>, Discoveries on Pacific Coast by, - 180 <i>Woman's knife</i> of Eskimo, 78 <i>Women</i>, dress of, 30-31 <i>Wood</i>, bowls of, 31, 40; knife handles of, 66, 68; wand of, 94. See <i>Boards, Canoes, Poles</i> <i>Woodworking</i>, excellence of, 31-33, 40 <i>Workshop</i>, absence of, 41, 162 <i>Woven</i>, basketry, 39; materials, 38, 158-159. See <i>Platting, Weaving</i> <i>Yarrow, H. C.</i>, Report on . . . Ethnological Researches . . . by, 179 <i>Yates, L. G.</i>, Deserted Homes of a Lost People by, 182 <i>Zaco</i>, pueblo on San Miguel island, 23, 28, 166 <i>Zalophus californianus</i>, see <i>Sea-lions</i> <i>Zárate Salmerón, Geronimo de</i>, Relaciones . . . of, 170	
AND MONOGRAPHS	4

SMITHSONIAN INSTITUTION LIBRARIES



3 9088 01142 8984